

ACADEMIC SUMMARY  
FALL 1988 - FALL 2019

LAURENCE I. GOULD — PHYSICS DEPARTMENT

[Frequently Used Abbreviations: APS = American Physical Society,  
AAPT = American Association of Physics Teachers]

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SCHOLARSHIP  
AND  
PROFESSIONAL DEVELOPMENT

A. PUBLICATIONS

1. Articles to Refereed Journals, Conference Proceedings, and Books

(a) “Noether’s Invisible Hand — A way of *Directly* Relating Both Local and Nonlocal Dynamical Laws to their Associated Conservation Laws” for *Symmetry: Culture and Science* **29**, No. 4, pp. 487 – 505 (2018). *Invited* and refereed paper. This paper exhibit a formalism which makes it possible to directly interrelate “laws (or equations) of motion” to “conservation laws”, “laws (or equations) of continuity”, and “balance laws” for “local” systems (those described by linear second-order differential equations) as well as for “nonlocal” systems (those described by linear second-order integrodifferential equations).

(b) Systematic And Logical Problems In Global Warming Science” *ENERGY & ENVIRONMENT* Volume 25 - No. 6 & 7, 1205 - 1219 (2014). *Invited* paper. This paper reasons about some of erroneous arguments used in promoting so-called “climate change” in order to better inform people about pitfalls from a *misuse* of the scientific method.

(c) “Noether’s Invisible Hand — A way of *Directly* Relating Both Local and Nonlocal Dynamical Laws to their Associated Conservation Laws” — *Symposium on Issues Pertaining to Symmetry in Physics (2)* — ISA Festival 2013 (Delft, The Netherlands; 2 August 2013). Publication of Abstract in *Symmetry: Culture and Science Vol. 24, No. ?, page first-*

*page?\_last?, 2013*

(d) "Introduction" to *Biological and Quantum Computing for Human Vision: Holonomic Models and Applications*, by Mitja Peruš and Chu Kiong Loo (Medical Information Science Reference of IGI Global, Hershey NY, 2011).

(e) "Symmetries from Minimizing 'Travel' Time: Reflections with Planets"; Abstract in *Symmetry Festival 2009*; program (Budapest, Hungary; 8/1/09) [paper in draft].

(f) "Snapshots of Symmetry in Einstein's Relativity"; Abstract in *Symmetry Festival 2006*; program and CD (Budapest, Hungary; 8/13/06).

(g) "Issues in Science and Religion: A Critical Evaluation," Chapter in *Science, Religion, and Society: History, Culture, and Controversy*, edited by Gary Laderman and Arri Eisen (M.E. Sharpe, NY, Fall 2007) [article completed 1/7/05 and solicited based on an invited talk (quantum theory and brain) given at Vassar College; forward by the Dalai Lama], pp. 81-99.

(h) "Seeing Science Through Symmetry", Chapter in *Symmetries in Science XI*, edited by Bruno J. Gruber, Giuseppe Marmo, and Naotaka Yoshinaga (Kluwer Academic Publishers, Boston, 2004), pp. 227-238. [based on an invited talk given in Bregenz, Austria (July 2003)]

(i) "Aspects Of 'Seeing Through Symmetry' — An Interdisciplinary Multimedia Course", for the *Symmetry Festival 2003* (Paper, based on talk, currently on CD of the Proceedings and is also expected to be published in *Symmetry: Culture and Science*, journal of the International Symmetry Foundation).

(j) "Integrating Science and Math into the Freshman Engineering Design Course" (co-authored with David Pines, Michael Nowak, Hisham Alnajjar, and Diego Benardete), *Proceedings of the 2002 American Society for Engineering Education Annual Conference & Exposition* (June, 2002).

(k) "Seeing Through Symmetry — As Seen Through Its Labs," invited Paper for *Symmetry: Culture and Science* **8**, Nos. 3-4, pp. 401 – 408 (1997; published in Fall 2001).

(l) "What Is Symmetry That Educators and Students Should Be Mindful Of It?" Chapter for the book, *Interdisciplinary General Education: Questioning Outside the Lines*, Marcia Bundy Seabury, Editor (College Entrance Examination Board, NY, 1999).

(m) "Faraday's Legacy: The Joys of Scientific Methodology," Guest Editorial for *QUANTUM* (November/December 1998), pp. 2–3 [<http://static.nsta.org/pdfs/QuantumV9N2.pdf>].

(n) "Reflections of the Relevance of Nonlocality to Cognitive Science and the Philosophy of Mind," from *New Directions in Cognitive Science*, Proceedings of the International Symposium (Saariselka, 4-9 August 1995, Lapland, Finland), edited by Paavo Pylkkänen and Pauli Pylkkö (Finnish Artificial Intelligence Society, Helsinki, 1995), pp. 104 - 114. This Paper goes further than the following one by generalizing both the neural dynamical model and the ontological model through the replacement of interaction terms, in the fundamental dynamical equations of those theories, by integrals; thus yielding integrodifferential equations as the more natural descriptors for brain processes.

(o) "Quantum Dynamics and Neural Dynamics: Some Analogies between the Formalisms of Bohm and Pribram," an invited Paper (Fall 1994) for *Scale in Conscious Experience: Is the Brain too Important to be Left to Specialists to Study?*, 3rd Appalachian Conference Proceedings on Behavioral Neurodynamics (Lawrence Erlbaum Associates, NJ, 1995), pp. 339 - 348. This demonstrates how it is possible to make advances in studying the neural dynamical formalism of Pribram, et al by casting that formalism into the framework of the ontological model of quantum theory as formulated by Bohm.

(p) "Computer Algebra for Lagrangian, Hamiltonian, and Autonomous Systems"

(unpublished). This Paper describes my research that determines, in part, how one can obtain symbolic solutions to any set of the fundamental equations of motion, Hamilton's equations, that are used to describe many-particle systems (such as those exhibiting chaos). I wrote a user-friendly program in MACSYMA that enables one to obtain such solutions. The program also interrelates the Hamiltonian and Autonomous routines with those for a Lagrangian.

(q) "Towards a More Causal Interpretation of Quantum Mechanics: The Ontological Interpretation of David Bohm," *Arkhimedes* **45**, No. 2, 144 - 157 (1993) [an international journal published by the Finnish Physical Societies and the Finnish Mathematical Society; with articles in Finnish, Swedish, and English]. This Paper brings in the relevant philosophy of science to explicate Bohm's causal interpretation of quantum mechanics.

(r) "Response to Mayants' Note on Bohm's Interpretation of Quantum Mechanics" (with B.J. Hiley, University of London), *Physics Essays* **6**, No. 1, 129 - 132 (March 1993) [an international journal dedicated to fundamental questions in physics; its editor is from Canada's National Research Council and one of the Associate Editors is from Princeton's Plasma Physics Lab]: This Paper clarifies David Bohm's "quantum potential" interpretation of Quantum Mechanics and answers one of its critics (L. Mayants). Basil Hiley is Bohm's main co-worker. Bohm himself has gained an eminent standing in the world of physics in general (partly for the "Aharonov-Bohm effect") and for his work in the foundations of quantum theory in particular.

(s) "Nonlocal Generalized Angular-Momentum Balance Laws and Equations of Motion," *International Journal of Engineering Science* **30**, 1417 - 1432 (1992): This research Paper goes beyond the usual local treatments by showing how one can determine rotational properties associated with a wide variety of nonlocal physical systems; such properties are, along with energy and momentum, very important for understanding physical systems. One of the applications is for multiparticle systems with "spin."

(t) "Balance Laws Associated with Nonlocal Equations of Motion for Theories Containing One Dependent Variable," *International Journal of Engineering Science* **28**, 459 - 468 (1990) [Editorial Board contains 1 Nobel Laureate]: This research Paper is on the same topic as the following one but for systems described by equations of motion characterized by a single primary variable. One of the applications determines the energy associated with the membrane-like material covering the wing of an ultralight plane.

(u) "Nonlocal Conserved Quantities, Balance Laws, and Equations of Motion," *International Journal of Theoretical Physics* **28**, 335 - 363 (1989) [Editorial Board contains 7 Nobel Laureates]: This Paper pertains to a formalism I created showing how the motion of a system can be used, more easily than current methods, to arrive at properties of the system which remain constant through time. An example given is in Quantum Mechanics where the system's motion, determined by a wave function from Schrödinger's equation, is used to obtain the system's energy. The value of this energy remains constant through time and represents important information for understanding the system. Consequently, some of the systems amenable to this formalism can be found at the atomic scale. Since atoms are constituents of human beings, as well as of galaxies, the research results can therefore lead to a better understanding of the nature of each of those systems.

(v) "Estimating the Speed and Distance of a Plane" (with C. Waiveris), *The Physics Teacher* **29**, 108 - 111 (1991) [one of the most widely read journals in physics education]: The Paper is based on a few years' research that includes determinations of the speed and distance of jet planes through simple measurements carried out by observers on the ground. It is thus an enjoyably instructive activity for both high school and college students.

(w) "Audio-Visual Aids in Materials Science and Engineering: A Current Overview," *Journal of Materials Education* **11**, 169 - 180 (1989) [an international journal whose Editorial Board is comprised of distinguished workers in the field of Materials Science; also published in Japanese]: This Paper not only explains the variety of multimedia aids useful in teaching Materials Science but also describes some utilized in my own teaching of the subject.

(x) "The SUNY Potsdam Miracle? Some Lessons for Physics," *Journal of College Science Teaching* **XXI**, 348 - 351 (1992) [a primary journal published by the National Science Teachers Association]: This Paper, solicited by the Journal's editor, describes the interactive methods and philosophy of teaching utilized by the mathematics department of the State University of New York at Potsdam. It then goes on to describe how such techniques have been applied to my own classroom work for the introductory physics courses PHY 112 and PHY 113.

(y) "Air Track with a Distributed Infrared Detector System" (with H. Workman), *American Journal of Physics* **56**, 739 - 744 (1988) [current Editor of Journal mentioned there is a 60% rejection rate]: This Paper explains details of the novel computer-based infrared-detection air track system utilized in some of our introductory physics laboratories. It also describes and gives data for some of the experiments that have been done using this air track.

## 2. Other Publications

(a) This issue of the *Newsletter* (Fall 2012) contains: (i) My Editorial comments on the various links to articles criticizing "global warming" (AGW); (ii) An article (my solicitation) by Prof. Fred Singer criticizing pro-AGW arguments by indicating what needs to be shown scientifically by advocates of those who argue for AGW. {This is the last issue for which I am Co-Editor and in which I have generated most of the Newsletter's layout.}  
<http://www.aps.org/units/nes/newsletters/upload/fall12.pdf>

(b) This issue of the *Newsletter* (Spring 2012) contains: (i) My Editorial comments on the Letter pertaining to "global warming" (AGW); (ii) An article (my solicitation) by Prof. Riccardo deSalvo criticizing pro-AGW articles in *Physics Today*. {I continue to be the Co-Editor and generate most of the Newsletter's layout.}  
<http://www.aps.org/units/nes/newsletters/upload/spring12.pdf>

(c) This (Fall 2011) issue of the *Newsletter* contains: (i) My Editorial on a variety of facets pertaining to "global warming" (AGW); (ii) Articles (my solicitations) by Dr. Gordon Fulks and by Dr. Roger Cohen critiquing various claims about AGW {I continue to be the Co-Editor and generate most of the Newsletter's layout.}  
<http://www.aps.org/units/nes/newsletters/upload/fall11.pdf>

(d) Signatory: *In reply to "The Importance of Science in Addressing Climate Change" — To the Members of the U.S. House of Representatives and the U.S. Senate (2/8/11)*  
<http://www.co2science.org/education/truthalerts/v14/TruthAboutClimateChangeOpenLetter.pdf>

(e) This issue of the *Newsletter* contains: (i) An article (my solicitation) by Ross McKittrick, one of the world's leading thinkers in the area of climate science; (ii) a link to Critiques of Deviations from the Scientific Method (Spring 2011). {I continue to be the Co-Editor and generate most of the Newsletter's layout.}  
<http://www.aps.org/units/nes/newsletters/upload/spring11.pdf>

(f) Signatory: Letter to The Honorable Lisa P. Jackson, Administrator, Environmental Protection Agency (10/7/10) <http://icecap.us/images/uploads/CorrectedEPALetter.pdf>

(g) This issue of the *Newsletter* contains: (i) My Editorial "Anthropogenic Global Warming: A Continuing Erosion of the Scientific Method"; *Newsletter of the New England Section of the*

*American Physical Society* (Fall 2010); and (ii) My photo of a prominent building on the campus of Union College <http://www.aps.org/units/nes/newsletters/upload/fall10.pdf>

(h) Solicited email interview about Global Warming; appeared in an article in the *Dalton Daily Citizen* (Dalton, Georgia; 4/7/10).

(i) “Global Warming a Dangerous Belief”: Email interview for on-line publication, *NewsMax* (7/7/09); [NewsMax.com](http://www.NewsMax.com)

(j) Solicited Comments about Global Warming: Email interview for on-line newspaper, *NY Metro* (3/31/09).

(k) This issue of the *Newsletter* contains: My Editorial “Global Warming/Climate Change: Update on Further Developments”; *Newsletter of the New England Section of the American Physical Society* (Spring 2010) <http://www.aps.org/units/nes/newsletters/spring10.cfm>

(l) This issue of the *Newsletter* contains: My Editorial “Global Warming/Climate Change: Further Developments”; *Newsletter of the New England Section of the American Physical Society* (Fall 2009) <http://www.aps.org/units/nes/newsletters/fall09.cfm>

(m) This issue of the *Newsletter* contains: (1) My letter of Reply to the Letter by Walter Stockwell, and (2) my Editorial “COMMENTS Related to Scientific Claims about ‘Global Warming’”; *Newsletter of the New England Section of the American Physical Society* (Spring 2009) <http://www.aps.org/units/nes/newsletters/spring09.cfm>

(n) This issue of the *Newsletter* contains: (1) My letter of Reply to the Letter by Frank Levin, and (2) my Editorial concerning “global warming”; *Newsletter of the New England Section of the American Physical Society* (Fall 2008) <http://www.aps.org/units/nes/newsletters/fall08.cfm>

(o) An Open Letter to Members of the New England Section of the American Physical Society — “Anthropogenic Global Warming Alarmism: A Corruption of Science” (12 pages); *Newsletter of the New England Section of the American Physical Society* (Spring 2008) <http://www.physics.ccsu.edu/aps-nes/News.htm>

(p) Letters in Reply to: (1) the Editor of the *APS News* about bias in the *APS News*, and (2) my Co-Editor of the *Newsletter* in response to his letter about “global warming”; *Newsletter of the New England Section of the American Physical Society* (Spring 2008) <http://www.physics.ccsu.edu/aps-nes/News.htm>

(q) Links to “Global Warming from a Critical Perspective” (requested) for *U.S. Senate Report: Over 400 Prominent Scientists Disputed Man-Made Global Warming Claims Senate Report Debunks "Consensus" in 2007* <http://epw.senate.gov/public/index.cfm?FuseAction=Minority.SenateReport> (January 2008)

(r) “Global Warming from a Critical Perspective” (requested); published on Intermountain Rural Electric Association (IREA) *Legislative Issues* page, <http://www.intermountain-rea.com/legislative.htm> (January 2008)

(s) “Critical Thinking and Global Warming” article in the *Newsletter of the New England Section of the American Physical Society* (Fall 2007) <http://www.physics.ccsu.edu/aps-nes/News.htm>

(t) Letter to the Editor about bias in the *APS News* and *Physics Today* reporting about “global warming”, in the *Newsletter of the New England Section of the American Physical Society* (Fall 2007) <http://www.physics.ccsu.edu/aps-nes/News.htm>

(u) Co-Editor, *Newsletter of the New England Section of the American Physical Society*, Vol. 11, Number 24 (Spring 2005).

(v) Article in the *MACSYMA Newsletter* (to be published) on my use of Macsyma in some of

my courses as well as in my research. The article is scheduled to have a biographical sketch, picture of me, and several examples of my AUTLAGHAM program. {This was solicited by Macsymba, Inc.}. During 1993 I revised the program, and created a Usage File as well as 2 files of Examples.

(w) Two brief articles in the *New Liberal Arts News* (May 1991): One describes my AUCT course "Seeing Through Symmetry" and the other, co-authored with Tom Sharpless, describes his AUCT course "Reasoning in Science." {These were solicited by Prof. John Truxal (Dept. of Technology and Society, SUNY at Stony Brook), one of the co-directors of the NLA program.}

### 3. Work in Progress

(a) "Einstein's Attempt at a Nonlocal Unified Field Theory" (with Tilman Sauer, Caltech); about 4 pages typed plus 11 additional typed pages of Appendices. [used in Fac. Eval. Form for 2007-08; needs to be updated for 2008-09]

(b) "Seeing Through Symmetry" textbook, laboratory manual, instructor's manual, multimedia software support (ongoing).

(c) "Computer Algebraic Solutions for Long-Time Behavior to Hamiltonian-like Systems." This is a continuation of 1.(a) in order to obtain solutions describing the characteristics of Hamiltonian systems believed to exist for times long after the establishment of such systems. One possible application pertains to weather prediction.

(d) "Soaring Through Physics," *The Physics Teacher*. The paper will describe the physics of flying a sailplane. It relates these issues to my own experience with flying such planes.

### 4. Miscellaneous

(a) Spring meeting of the New England Section of the APS/AAPT/Society of Physics Students at Exeter Academy (Exeter, NH; 3/26-27/04).

(b) Fall meeting of the New England Section of the APS/AAPT/Society of Physics Students at Bates College (Lewiston, ME; 10/3-4/03).

(c) "What's A Foolish Question?" (with R.I.G. Hughes of Yale University): Letter to the Editor of *Physics Today* (1/14/89, unpublished). This pertains to the importance of foundational issues in the interpretation of Quantum Mechanics.

(d) Article by a reporter for the *Hartford Courant* (1/3/91) based on a phone interview concerning "What Makes Science Hard?" I was called as a result of being the person who brought Dr. Tobias, a nationally known educator, to our campus during the Fall 1990 semester for a day of talks as well as meetings with the faculty.

(e) Phone interview (Spring 1991) by a reporter from the *Los Angeles Times* (was to be published, July 1991) based on a U. Conn. colleague's disagreements with the foundations of Einstein's Theory of Special Relativity.

(f) Article by the University's Ned Turner for *The Academic Computer Services Newsletter* (November 1991) entitled "Gould offers insight with *Seeing Through Symmetry*." I was asked for an interview to describe my new AUC course.

## B. LECTURES and INTERVIEWS

### INVITED

#### 1. Professional Organizations and International Workshops

(a) Interviewed as part of a TV documentary about my views of science (Helsinki, Finland; 11May2019)

(b) Public lecture (non-technical): “Quantum Ontology of de Broglie and Bohm with Reflections on the Meaning of Probability” for the Unification in Physics and Philosophy workshop (Helsinki, Finland; 11May2019)

(c) Interviewed as part of a TV documentary about stagnation in science (Haikko, Finland; 10May2019)

(d) Seminar on “Quantum Ontology of de Broglie and Bohm with Reflections on the Meaning of Probability” for the Unification in Physics and Philosophy workshop (Haikko, Finland; 10May2019)

(e) Public lecture on “Dangerous Human-Caused ‘Climate Change’: Have you been told the Truth?”; Rotary Club of East Hampton (East Hampton, CT; 1/9/2019)

(f) Interview and Debate with Professor Meredith Hastings of Brown University; on “Chapter & Verse”, a TV talk show hosted by Ray Dempsey and Sandra Sanchez; Public Access Television Rhode Island, Channel 14 (Cox cable); program (Rhode Island, 5/10/2018)

(g) Interview by Jorge Rosas, Student Television Network, News Director on topic of “Hurricanes and Global Warming” (University of Hartford; 20 September 2017)  
<http://stn2.tv/article/view/778> VIDEO (1 min 30 sec) ClimateChangeAndHurricanes\_  
<https://drive.google.com/file/d/0B-x65aaKmUECZThMNDVrdkZOZWs/view?ts=59ea3c0c>

(h) Interview by Peter Lanzillo on Peter's Corner, Winds of Change, Episode 7 “Critical Thinking about Global Warming” (New Hampshire; 5 July 2017)  
<http://hudsonctv.com/CablecastPublicSite/show/6916?channel=1>

(i) SF16: SYMMETRY FESTIVAL 2016 — Technical University of Vienna (18-22 July 2016), under the auspices of the International Symmetry Association (ISA). Was a main organizer and part of the international organizing team consisting of representatives from Austria, Hungary, Finland, and the United States. Two themes were (1) Symmetry in Art & Science and (2) Celebrating 100 Years of General Relativity; invited Keynote speaker, Symposium speakers, and Panel participants. [http://festival.symmetry.hu/wp-content/uploads/2016/07/SF16\\_Preliminary\\_program.pdf](http://festival.symmetry.hu/wp-content/uploads/2016/07/SF16_Preliminary_program.pdf) and <http://festival.symmetry.hu>

(j) SF16: Remarks at Opening Ceremony as Chairperson of the ISA Executive Board (7/18)

(k) SF16: Chair of the session featuring (relativity) Keynote speaker (on symmetry in relativity) from Vienna University (7/18)

(l) SF16: Chair of session on Gravitational Waves featuring Keynote speaker (7/21)

(m) SF16: Chair of Relativity session featuring three talks (philosophy, gravitational waves, and antiparticles); (7/21)

(n) SF16: Education session, my presentation on “The Sound in Music: From Symmetrical Substructures to the Sound of Music” (7/21)

(o) SF16: My Plenary Lecture, “Albert Einstein: Myth and Magic” (7/21)

(p) SF16: Chaired Panel discussion (two physicists, one artist) which I organized and titled “Exploring Connections Between Relativity and the Arts” (7/22)

(q) Discussion/Debate about issues in Anthropogenic Climate Change with Meredith G Hastings (Brown University, Institute at Brown for Environment and Society); *Chapter & Verse* television program hosted by Raymond Dempsey (Co-Host, Sandra Sanchez); PEG (Public, Education & Government) Rhode Island TV (Providence, RI; 1/7/16) [about 1 hour]

(r) “Dangerous Anthropogenic Global Warming: FALSE... Yet Not EVEN False” — 9<sup>th</sup> International Conference on Climate Change (Las Vegas, NV; 7/7-9/14)  
<http://climateconference.heartland.org/>

- (s) “*Overview of Symmetries in World Climate: Searching for Symmetries in Climate Change and ‘Climate Change’*” — Explaining Differences between the Two Approaches”; Lecture to climate experts (Leiden, The Netherlands; 9 August 2013)
- (t) “*Overview of Symmetries in World Climate: Searching for Symmetries in Climate Change and ‘Climate Change’* — Explaining Differences between the Two Approaches”; Visiting Lecture Series, Public Climate Program, at SPACE EXPO (Noordwijk, The Netherlands; 6 August 2013)
- (u) Organizer and Co-Chair of the international *Symposium on Asymmetries of Climate Change and Water Resources (Causes and Consequences)* for the International Symmetry Association (ISA) Festival 2013 [http://symmetry.hu/documents/SF13\\_Preliminary\\_program.pdf](http://symmetry.hu/documents/SF13_Preliminary_program.pdf) [Note: this is also the Final program] (Delft, The Netherlands; 3 August 2013)
- (v) “Searching for Symmetries between Climate Change and ‘Climate Change’ — Enhancing Scientific Inquiry through Critical Analysis” — concluding commentary, *Symposium on Asymmetries... lecture* (Delft, The Netherlands; 3 August 2013)
- (w) “Symmetry of the Milky Way and its Consequences for Life on Earth” — *Symposium on Asymmetries... lecture* [given for Henrik Svensmark; Center for Sun Climate Research, Space DTU; Denmark] (Delft, The Netherlands; 3 August 2013)
- (x) Organizer and Moderator of the international Panel Discussion *On Interdisciplinary Symmetry Studies in the 2010s* — ISA Festival 2013 (Delft, The Netherlands; 3 August 2013)
- (y) Organizer and Chair of the international *Symposium on Issues Pertaining to Symmetry in Physics (2)* — ISA Festival 2013 (Delft, The Netherlands; 2 August 2013)
- (z) “Noether’s Invisible Hand — A way of *Directly* Relating Both Local and Nonlocal Dynamical Laws to their Associated Conservation Laws” — *Symposium on Issues Pertaining to Symmetry in Physics (2)* — ISA Festival 2013 (Delft, The Netherlands; 2 August 2013)
- (aa) Chair of the international *Symposium on Issues Pertaining to Symmetry in Physics (1)* — ISA Festival 2013 (Delft, The Netherlands; 2 August 2013)
- (bb) Co-Organizer and Chair of the international *Symposium “Physics Day”* featuring Gerard ‘t Hooft (Nobel laureate in Physics) giving the Keynote lecture (“Symmetries in Elementary Particle Physics”) — ISA Festival 2013 (Delft, The Netherlands; 2 August 2013)
- (cc) Interview by Bruce DePrest, Chief Meteorologist WFSB-TV, Channel 3, Eyewitness News (University of Hartford; 5/1/13) which aired later that month <https://db.tt/Ffy501Lx>
- (dd) “Climate Change *versus* ‘Climate Change’” presentation to Bruce DePrest, Chief Meteorologist WFSB-TV, Channel 3, Eyewitness News (University of Hartford; 5/1/13)
- (ee) “‘Global Warming/Climate Change’: Issues for Education and for Scientific Societies” — 7<sup>th</sup> International Conference on Climate Change: Reconsidering the Science and Economics (Chicago, IL; 5/21-23/12) <http://climateconference.heartland.org/>
- (ff) “What You Don’t Know CAN Hurt You (and Others); Advice to Educators (and Others)” — 4<sup>th</sup> International Conference on Climate Change: Reconsidering the Science and Economics (Chicago, IL; 5/16-18/10) <http://www.heartland.org/environmentandclimate-news.org/ClimateConference4>
- (gg) “Global Warming/Climate Change” Alarmism — to the Republican Town Council (Bloomfield police station, CT; 1/19/10)
- (hh) “Global Warming/Climate Change” phone interview on the Ray Dunaway show (WTIC; 1080 AM; 12/14/09) <http://podcast.wtic.com/wtic/2108939.mp3>
- (ii) “A Critical Look at Global Warming” — Hoffman SummerWood Community center (West Hartford, CT; 10/9/09)



- (jj) “Global Warming/Climate Change Alarmism: A Building Without Foundation” — Y’s Men of Westport/Weston (Westport, CT; 10/1/09)
- (kk) “The Mythology of Anthropogenic Global Warming & its Policy Consequences” — Occupational & Environmental Medicine Colloquium, University of Connecticut Health Center (Farmington, CT; 6/18/09)
- (ll) “‘Global Warming/Climate Change’: Dissecting the Claims, Exposing the Methods” — South Windsor Rotary Club (South Windsor, CT; 5/13/09)
- (mm) “Global Warming Alarmism: Checking the Claims, Exposing the Methods” — The Exchange Club of Glastonbury (Glastonbury, CT; 3/19/09)
- (nn) “Global Warming Alarmism: Checking the Claims, Exposing the Methods” — for The 2009 International conference on Climate Change (New York City; 3/10/09)
- (oo) “A Critical Look at ‘Global Warming’” for the Mandell Jewish Community’s Men’s Club (West Hartford, CT; 3/4/09)
- (pp) “Global Warming Alarmism” — The League of Women Voters of New Haven Regional Round Table Luncheon (Including the Amity, Cheshire/Wallingford, Hamden, New Haven/West Haven and North Haven Leagues); Graduate Club of Yale University (New Haven, CT; 2/24/09)
- (qq) “*A Convenient Falsehood* Myths, Methods, and Consequences of the Global Warming Hoax,” Keene State College (Keene, NH; 10/2/08)
- (rr) “*False Alarm!* Explaining Major Scientific and Methodological Errors behind the Global Warming Scare” — The Cooler Heads Coalition — Congressional Staff and Media Briefing; Longworth House Office Building, Capitol Hill (Washington, DC; 9/17/08)
- (ss) “Einstein: Myth & Magic” — Amateur Astronomers Association of New York City; American Museum of Natural History (New York City; 3/7/08).
- (tt) Discussion Leader and Presentation on “Global Warming” following the matinee of *An Inconvenient Truth* at Cine Studio (Trinity College; 9/9/06).
- (uu) “Albert Einstein: Myth and Magic,” Avery Heights retirement community (Hartford, CT; 8/22/05) — celebrating the 2005 Einstein Centennial Year.
- (vv) “Albert Einstein: Myth and Magic,” Quinebaug Valley Community College (Danielson, CT; 3/21/05) — celebrating the 2005 Einstein Centennial Year.
- (ww) “Albert Einstein: Myth and Magic” [educational outreach celebrating the Einstein Centennial Year], Prosser Public Library (Bloomfield, CT; 3/22/05).
- (xx) “Research Activity in Computational Physics” for the Caltech/Jet Propulsion Laboratory’s Ultracomputing Group (June 2004; NASA-JPL, Pasadena, CA).
- (yy) “Seeing Science Through Symmetry: An Interdisciplinary Multimedia Course” for the *Symmetries in Science XIII* conference (Bregenz, Austria; 7/20-24/03).
- (zz) “A Quantum-Like Nonlocal Model with Possible Application to Brain States” for the international workshop: *Can there be a Science of Consciousness?* (University of Skövde, Sweden; 20 - 22 June 2000).
- (aaa) “Continuous Weight Functions and Implications for Nonlocal Dynamical Equations and Balance Laws of some Quantum-like Neural Networks” (3/2/00) for the Special Session on Field Computation (Continuum-Limit Neural Computation) at the 4th International Conference on Computational Intelligence and Neuroscience (Atlantic City, February 27 - March 3, 2000).
- (bbb) “Computer Algebraic Run-Time Studies of some Nonlocal Associative Neural Networks” (2/29/00) for the Special Sessions on Quantum and Neuro/Quantum Information Processing at the 4th International Conference on Computational Intelligence and Neuroscience (Atlantic City, February 27 - March 3, 2000).

(ccc) "Use of Generalized Nonlocality in Synergetic Associative Neural Networks" for the Connecticut Space grant College Consortium 1998 Conference (Legislative Office Building; Hartford, CT, November 2, 1998).

(ddd) "A Program for the Application of Generalized Nonlocality to the Study of Synergetic Associative Neural Networks" for the Neuro-Quantum Information Processing Session at the 3rd International Conference on Computational Intelligence and Neuroscience (Research Triangle Park, NC, October 24-28, 1998).

(eee) "Reflections of the Relevance of Nonlocality to Cognitive Science and the Philosophy of Mind," *New Directions in Cognitive Science*, an International Symposium sponsored by The Academy of Finland Research Group in Cognitive Science (Saariselka, 4-9 August 1995, Lapland, Finland). I also chaired the session on Musical Cognition in which a paper was presented by Brian Josephson, Nobel laureate in physics

(fff) "Computer Algebra for Lagrangian, Hamiltonian, and Autonomous Systems": Edelen Symposium at the 31st Annual Technical Meeting of the Society of Engineering Science (Texas A&M, 10/10-12/94).

(ggg) "Relating Nonlocal Equations of Motion to Gauge-Oriented Balance Laws" (International Summer School on Topology, Geometry and Gauging in Field Theoretic Models of Condensed Matter; Jablonna, Poland; 9/1/89). I was also asked to Chair the morning session on 8/31/89.

(hhh) "Nonlocal Angular-Momentum Balance Laws and Equations of Motion": Eringen Symposium at the 28th Annual Meeting of the Society of Engineering Science (University of Florida at Gainesville, 11/6-8/91).

(iii) I created and chaired the session titled "Keeping the Vision Alive: The Pursuit of Physics — A Female Perspective," which I organized for the AAPT Committee on Women in Physics — Winter Meeting of the AAPT (New Orleans, 1/4/93). One of the six women physicists who spoke is the widely known Editor of *Physics Today*, Gloria Lubkin.

## 2. Universities

(a) "“Global Warming/Climate Change”: A Critical Look” POSTER for the Fall 2011 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (UMass, Amherst, MA; 11/18/11)

(b) “Global Warming” — Interactive lectures with two Introduction to Meteorology classes of Dr. Frederick Wolf (Keene State College, Keene, NH; 10/3/08)

(c) “*A Convenient Falsehood: Myths, Methods, and Consequences of the Global Warming Hoax*” — university-wide and general public talk (Keene State College, Keene, NH; 10/2/08)

(d) ““Global Warming’: A Critical Examination of the Claims” — university-wide talk (Princeton University; sponsored by the Physics Dept.; Princeton, NJ; 8/11/08)

(e) “Albert Einstein: Myth and Magic” — university-wide talk (Department of Physics & Astronomy; Louisiana State University, Baton Rouge, LA; 3/23/06).

(f) “A Causal Program For Quantum Physics: De Broglie to Bohm” — quantum seminar (Department of Physics & Astronomy; Louisiana State University, Baton Rouge, LA; 3/24/06).

(g) “Albert Einstein: Myth and Magic” at Smith College (Northampton, MA; 11/14/05) — celebrating the 2005 Einstein Centennial Year.

(h) “Wanderings Through Symmetry” — Physics Colloquium talk (University of Connecticut, Storrs, CT; 4/2/04).

(i) "Computer Algebra Program for Lagrangians, Hamiltonians, and Autonomous Systems" — informal seminar, Math Department (University of Arizona, Tucson, AZ; 12/6/02).

(j) "Can Quantum Physics Tunnel Its Way Into Consciousness?" — colloquium at Vassar College (Poughkeepsie, NY; 4/21/99).

(k) "Computer Algebra for Lagrangian, Hamiltonian, and Autonomous Systems" — seminar at the Jet Propulsion Laboratory (California Institute of Technology/NASA, Pasadena, 3/17/99).

(l) "Generalized Nonlocality, Brain Nets, and Neural Nets" — seminar at the Jet Propulsion Laboratory (California Institute of Technology/NASA, Pasadena, 3/18/99).

(m) "A Causal Program For Quantum Physics: De Broglie to Bohm" — seminar (Physics Department, Trinity College, 2/27/98).

(n) "Boundary Conditions Associated with a Class of Nonlocal Dynamical Equations" at the Fourth Meeting of Current Ideas in Mechanics and Related Fields (Collegium Maius of the Jagiellonian University, Krakow, 8/28/97).

(o) "Reflections of the Relevance of Nonlocality for Physics, Cognitive Science and the Philosophy of Mind: Bohm, Pribram and Beyond" — seminar (Department of Mathematics {Faculty of Mathematics and Physics}, University of Ljubljana; Slovenia, 8/13/96).

(p) "Computer Algebra for Lagrangian, Hamiltonian and Autonomous Systems" — seminar (Department of Mathematics {Faculty of Mathematics and Physics}, University of Ljubljana; Slovenia, 8/6/96).

(q) "Computer Algebra for Lagrangians, Hamiltonians, and Autonomous Systems" — colloquium lecture (Institute for Theoretical Physics, University of Helsinki, 8/15/95). During my stay in Finland I was also a guest of the Institute for Theoretical Physics (July 19 - August 16, 1995).

(r) "Using Competing Species towards a Nonlocal Model for Neural Nets" and (the first main talk of the workshop) "An Overall View of Quantum Mechanics"; at the international workshop titled "Brain, Mind and Physics" (Charles University; Prague, 9/13-17/93; local expenses paid). There were 14 invited talks, including one by Sir John Eccles (Nobel Laureate in physiology and medicine).

(s) "Physics and Philosophy concerning the Application of Variational Principles toward Relating Dynamical Equations to Conservation Laws" (Oxford University; England, 6/17/91). There were about 9 scholars present at my lecture. Several were visiting Oxford from abroad. One of these was Simon Saunders from Harvard's philosophy department.

(t) "Lecture Program in Finland" (September and October 1992):

i. "The Basic Features of the Ontological Interpretation of Quantum Theory in View of its Application in Connectionism" (Sept. 12th) and

ii. "The Situation in Modern Physics" (Sept. 14th);

(u) both for "Physicalism Connectionism and Consciousness: An International Symposium on the Foundations of Cognitive Science" [The University of Helsinki Centre for Continuing Studies, Siuntio].

i. "Bohm's Model of Quantum Reality" (Sept. 16th) [at a public seminar celebrating the publication of *Science, Order, and Creativity* by David Bohm and F. David Peat; University of Helsinki, main building].

ii. "Relating Equations of Motion to Associated Balance and Conservation Laws" (Sept. 24th) [theoretical physics seminar, Research Institute for Theoretical Physics, University of Helsinki].

- iii. "Towards a more Causal Interpretation of Quantum Mechanics: The Ontological Interpretation of David Bohm" (Sept. 24th) [paper read to the Department of Philosophy seminar, University of Helsinki].
- iv. "Causal Program for Quantum Mechanics: From de Broglie through Bohm" (Sept. 25th) [technical-physics seminar, Helsinki University of Technology].
- v. "Philosophical Ideas in Bohm's Model of Quantum Physics" (Oct. 1st) [natural-philosophy seminar, University of Helsinki].

(v) "A Causal Program for Quantum Mechanics: From de Broglie through Bohm" (Five-College Faculty Seminar in the Foundations of Physics; Amherst College, 10/29/90). The reception of my talk can be judged by the External Letter from Prof. C. Chancey of Amherst College.

(w) "Computer Algebra for Hamiltonian-like Systems" (Portsmouth Polytechnic Institute; England, 7/2/91).

(x) "Computer Algebra for Hamiltonian-like Systems" (Free-University of Berlin; Germany, 7/5/91).

(y) "Relating the Nonlocal Schroedinger Equation to its Associated Conservation Laws and Balance Laws: An Aspect of a General Formalism based on the Nonlocal Variational Calculus" (University of New Mexico; Albuquerque, 7/4/89).

## CONTRIBUTED

### 1. Professional Organizations

(a) "ALBERT EINSTEIN: Creative Milestones of Kurt Gödel's Friend"; lecture for Gödel Legacy Conference (Vienna, Austria; 26 July 2019)

(b) "Matters of Fact and of Method pertaining to Anthropogenic Global Warming/Climate Change"; POSTER for the Sigma Xi Annual Meeting (Kansas City, MO; 10/22-25/2015)

(c) Comments critiquing "Climate Change" science and suggesting policy re-examination to the Governor's Council on Climate Change; Department of Energy and Environmental Protection Headquarters (79 Elm Street; Hartford, CT; 7/10/15) [about 6 mins]

(d) "Issues in Going Solar" — Bloomfield Town Council Presentation (Bloomfield, CT; 6/9/14)

(e) "Scientific Understanding: Issues of Fact and of Method Undergraduate Physics Education: A Critical-Thinking Approach to Analyzing some of Science while Teaching the Scientific Method" — LECTURE for the Spring Meeting of the of the New England Section of the American Physical Society (Bridgewater State University, MA; 10/12/13)

(f) "Global Warming, Climate Change (AGW) — A Critical Look" — POSTER for the Spring Meeting of the of the New England Section of the American Physical Society (Bridgewater State University, MA; 10/11/13)

(g) "'Global Warming/Climate Change': A Critical Analysis of some of the Scientific and Methodological Approaches — POSTER for the Spring Meeting of the of the American Physical Society (Baltimore, MD; 3/21/13)

(h) "Global Warming, Climate Change" (AGW) — A Critical Look" — POSTER for the Fall 2012 Joint Meeting of the of the New England Sections of the American Physical Society and the American Association of Physics Teachers (Williams College, Williamstown, MA; 11/9/12)

(i) "'Global Warming/Climate Change': A Critical Look" NES APS Poster for the Fall

2011 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (UMass, Amherst; 11/18/11)

(j) Comments Critiquing “Climate Change” to The Governor’s Steering Committee on Climate Change Adaptation Subcommittee at the Public Information Meeting: The Impacts of Climate Change on Connecticut Agriculture, Infrastructure, Natural Resources and Public Health (The Connecticut Agricultural Experiment Station; New Haven, CT; 1/12/10)

(k) Comments Critiquing “Climate Change” to the Adaptation Subcommittee of the Governor’s Committee on Climate Change (GSC) (Legislative Office Building; Hartford, CT; 12/17/09) —

[http://ctnv1.ctn.state.ct.us/C/climate\\_change\\_12-17-09.wmv](http://ctnv1.ctn.state.ct.us/C/climate_change_12-17-09.wmv) [in last half hour]

(l) “Remarks about Arthur Loeb (ISA) & Invitation to next ISA Conference” for the Symposium on “Synergetics and Morphology” (Rhode Island School of Design, Providence, RI; 11/4/07).

(m) “Global Warming: Claims, Science, and Consequences” for the APS, at the Joint Spring Meeting of the New England Sections of the APS and the AAPT (University of Maine at Orono; 4/21/07).

(n) “A Symbolic and Graphical Computer Representation of Dynamical Systems” for the APS, at the Joint Spring Meeting of the New England Sections of the APS and the AAPT (MIT, 4/1-2/05); with (my research student) Christopher J. Mahar -- poster session.

(o) “An Integrated Computer-Algebra Package for Upper-Level Physics & Engineering Courses” (2002 Sigma Xi Annual Meeting; Galveston Island, Texas; 11/5-17/02)

(p) “A Multipurpose Computer-Algebra Program for Upper-Level Physics Courses” on 6/26/01 (2001 Annual Meeting of the Division of Computational Physics, DCOMP, of the American Physical Society; Massachusetts Institute of Technology; June 25-28, 2001).

(q) “A Multimedia Approach to ‘Seeing Through Symmetry’” [co-authored with Donald P. Buckley, Biology Dept.] (Winter Meeting of the American Association of Physics Teachers; San Diego, 1/3-8/94).

(r) “Computer Algebra applied to Lagrangian and Hamiltonian Dynamics” (for the APS, at the Joint Spring Meeting of the New England Sections of the APS and the AAPT; Williams College, 4/2-3/93). I presented a talk as well as a poster session.

(s) “Computer Algebra for Hamiltonian-like Systems” (Joint Spring Meeting of the New England Sections of the APS and the AAPT; Smith College, 4/6/91).

(t) Same title as in (b) (Fall Meeting of the New England Section of the APS; Yale University, 10/19/90).

(u) “Computer-Algebraic Solutions to Hamiltonian Equations” to the APS (Joint Spring Meeting of the New England Sections of the AAPT & APS; Wesleyan University, 4/7-9/89).

## C. GRANTS

### 1. Received

(a) Dean’s Research Award for “Einstein Papers Research at Caltech: Einstein Attempts at a Nonlocal Unified Field Theory”; to complete research with Dr. Tilman Sauer, *Senior Scientific Editor* of the Einstein Papers Project (Caltech, Pasadena; 7/17 – 8/16/07) [\$2,000].

(b) NASA EPSCoR Proposal, “Symbolic Computational Physics for Interdisciplinary Applications: Phase II” (3/4/04) [\$10,000]

(c) NASA EPSCoR Proposal, “Symbolic Computational Physics for Interdisciplinary Applications” (4/30/02) [\$10,000]

(d) Connecticut Space Grant College Consortium travel award — meeting for the continuation of joint research in the use of quantum neural networks for space exploration (Jet NASA/Propulsion Laboratory, California Institute of Technology, Pasadena; for academic year 2001-2002) [\$1,000]

(e) Connecticut Space Grant College Consortium Curriculum Development award for “Visions of Space: A NASA-Based Inquiry-Oriented Multimedia Enhancement of Courses in Physics and Math” (5/2/00) [\$5,000]

(f) Participant in the NASA EPSCoR Preparation Grant (6/1/00 – 5/31/01) [\$200,000?]

(g) Participant, as the Physics Department representative, in the NSF grant, “Integrating Engineering Design with Humanities, Sciences and Social Sciences,” awarded to the College of Engineering (Spring 1999 –Spring 2001).

(h) International Center Faculty Grant to internationalize my Seeing Through Symmetry course through interaction with colleagues at the University of Skoevde, Sweden (academic year 1999-2000) [\$1,000]

(i) Faculty Research Grant from the Connecticut Space Grant College Consortium for the project "Neuro-Quantum Information Processing for Space Microsystems and Space Science Data Analysis" with California Institute of Technology's NASA/Jet Propulsion Laboratory (4/29/99) [\$2,500]

(j) Connecticut Space Grant College Consortium travel award — contact meeting for the possibility of joint research in the use of quantum neural networks for space exploration (Jet NASA/Propulsion Laboratory, California Institute of Technology, Pasadena, 3/10-22/99) [\$1,000]

(k) Connecticut Space Grant College Consortium travel award to present a paper, "Use of Generalized Nonlocality in Synergetic Associative Neural Networks" at the 3rd International Conference on Computational Intelligence and Neuroscience (Research Triangle Park near Durham, NC, October 24-28, 1998) [\$1,000]

(l) As Principal Investigator/Project Director, NSF Instrumentation and Laboratory Improvement Grant for my AUC course "Seeing Through Symmetry" (National Science Foundation; Washington, D.C.). [Total amount: \$114,308, half of which is matched by the University, 5/14/93 - 11/95. Co-Principal Investigator: Donald P. Buckley, Biology Dept.]

(m) Grant to the University of Hartford Sigma Xi Club to sponsor Sheila Tobias' lecture at our school (National Sigma Xi Office, Fall 1990). As president of the Club, I initiated the grant with the Treasurer Prof. E. Gardow (Mechanical Engineering Department).

(n) I am one of the two "science advisors" for Marilyn Schaffer's 3-year NSF grant entitled "Teachers, Technology and Environmental Concerns" and contributed some advice during the writing of the proposal. (See also G. 3.)

(o) Coffin Grant, 1992/93, for computer algebraic studies of long-time behavior associated with Hamiltonian systems.

(p) Coffin Grant, 1989/90, for computer algebraic studies of Hamiltonian systems.

(q) ACAC Grant, 1991/92, for development of my AUC course "Seeing Through Symmetry."

(r) Humanities Center Summer Research Grant (U. of Hartford, 1989)

(s) Faculty Development Grants for 1988/89, 1989/90, and 1990/91.

## 2. Submitted (not funded or no word yet about getting funded [nyf])

(a) International Center Faculty Grant application to University of Hartford's

International Center (7/1/15); not funded

(b) Defense Advanced Research Projects Agency (DARPA) Proposal Abstract (with Drs. Igor Kulikov, and Dmitry Strekalov of JPL/Caltech), "Application of Quantum Interferometric Methods for Detecting and Synchronizing the Motion of Satellites" (Spring 2010); not funded

(c) NASA Faculty Research Grant Proposal, Symbolic Computations for Mission Sensors & Gravitational Gradiometer (10/13/06)

(d) International Center Faculty grant to develop first-year seminar for symmetry (UofH; 11/1/06).

(e) National Reconnaissance Office (NRO) Proposal (with Dr. Igor Kulikov, JPL/Caltech), "Modern Quantum Technologies: Cold-Atom and BEC-On-Micro-Chip Rotation and Acceleration Sensors" (Summer 2005)

(f) NASA EPSCoR Proposal, "Symbolic Computational Physics for Mission Sensors" (3/21/05)

(g) NASA Faculty Research Grant Proposal, *Symbolic Computations for Mission Sensors & Gravitational Gradiometer* (10/14/04)

(h) Director's Research and Development Fund Proposal FY 2003 (Caltech/NASA), "Advanced Quantum Gradiometer for Detecting Underground Abnormalities" with I. Kulikov and M. Zak (JPL) (10/5/02) [\$200,000 for JPL; \$200,000 for U. of H.]

(i) Proposal to University of Hartford Faculty Senate for a Summer Stipend 2001 award to write a monograph, *Nonlocal Balance Laws and Conserved Quantities Related to Systems of Linear Second-Order Integrodifferential Equations of Motion* (10/27/00).

(j) EPSCoR Proposal for "Analyzing Emerging Phenomena in Evolutionary Systems" (8/4/00).

(k) Proposal to California Institute Of Technology FY 1999 President's Fund for "Analyzing Emerging Phenomena in Evolutionary Systems" (5/6/99).

(l) Proposal for a Faculty Fellowship in the Humanities Center for 1999-2000 to the University of Hartford's Humanities Center, for "Visualizing Nature's Hidden Waves" (3/1/99).

(m) Fulbright Senior Scholar Program, 1999-2000 U.S. Scholar Application for Poland/Lecturing Award No. 9196. Submitted to the Council for International Exchange of Scholars, Washington, D.C. (7/28/98).

(n) Proposal to Connecticut Space Grant College Consortium for a Curriculum Development grant to support the project "Visions of Space: A NASA-Based Inquiry-Oriented Multimedia Enhancement of Courses in Physics and Math" (3/31/98).

(o) Proposal to Connecticut Space Grant College Consortium for a Faculty Research grant to support the project "Neuro-Quantum Information Processing for the Exploration of Space" (3/31/98).

(p) Proposal to the National Research Council for Collaboration in Basic Science and Engineering (COBASE) grant titled "Application of Generalized Nonlocality to the Study of Synergetic Associative Neural Networks." Submitted to the NRC's Office of International Affairs, Washington D.C. (12/16/97).

(q) Proposal to the National Research Council for Collaboration in Basic Science and Engineering (COBASE) grant titled "Application of the Nonlocal Variational Calculus to the Study of Synergetic Associative Neural Networks." Submitted to the NRC's Office of International Affairs, Washington D.C. (12/96).

(r) Proposal for funds to attend the meeting "New Directions in Cognitive Science" (Finland, 4-9 August 1995) to Grants for Travel to International Meetings Abroad, the American

Council of Learned Societies (228 East 45th Street; New York, NY 10017). Submitted (1/30/95).

(s) Application for Summer Stipend Award for Scholarly Activity to rewrite and test labs for my AUCT 160 symmetry course, develop 2 new ones, and test them on the new computer (hardware & software) equipment in order to have them ready for this Fall. Submitted to the Faculty Senate (5/5/95).

(t) Same as in (b) but Submitted to the College of Arts and Sciences (5/23/95).

(u) Coffin Grant Proposal for "A Nonlocal Competing Species Model for Neural Networks" (U. of Hartford, Spring 1993).

(v) NSF ILI proposal [1. (a) above]: Re-submit (11/15/92). Submit (11/15/91).

(w) Cottrell Grant Application (Research Corporation; Tucson, Arizona; 11/13/89).

(x) Proposal to Merck Innovation Awards in Undergraduate Science Education (Consortium for the Advancement of Private Higher Education; New Hampshire, 4/5/89).

### 3. Work in Progress

(a) U.S.-Poland Cooperative Research Project entitled "Variational Formalism and Irreversible Processes" (Grant Proposal to the National Science Foundation; proposal is almost finished). The proposal's aim is to give a unified treatment of irreversible processes, friction and heat dissipation being two of the many examples. My collaborator is Dr. Romuald Kotowski of the Institute of Fundamental Technological Research of the Polish Academy of Sciences. We have worked together in the past.

## D. MISCELLANEOUS AWARDS

1. Award of a round trip to Oxford University as Senior Sponsor of Daniel Hultgren, John G. Martin Scholar to Hertford College in Physics (U. of Hartford, 5/09; Physics, B.S. and Philosophy, B.A.)
2. Award of a round trip to Oxford University as Senior Sponsor of Jessica Dunmore, John G. Martin Scholar to Hertford College in Physics (U. of Hartford, 12/98; Physics, B.S. and Mathematics, B.S.)
3. Award of a round trip to Oxford University as Senior Sponsor of Chris Raymond, John G. Martin Scholar to Hertford College in Physics and Philosophy (U. of Hartford, 6/91; Physics, B.S. and Mechanical Engineering, B.S.)
4. University award (Spring 1991) of a 1-course load reduction to write an NSF grant proposal for "Seeing Through Symmetry"

## E. HONORS

1. Humanities Center Faculty Fellow (U. of Hartford, 2017/2018 academic year) for proposal "Science and the Secular Spirit"
2. Yale Visiting Fellow (History of Science and Physics depts.), History of Science (1991/92). My sponsor was Prof. Martin Klein, Director of the Einstein Project.
3. Yale Visiting Fellow (Philosophy dept.), Foundations of Physics (1988/89). Work was in the foundations of relativity and of quantum theory.
4. Who's Who (recent; for year following the pub date shown):  
*Who's Who in Science and Engineering* 12<sup>th</sup> Edition (2016-2017); 11<sup>th</sup> Edition (2010); 10<sup>th</sup> Anniversary Edition (2007); 9<sup>th</sup> (2006), 5<sup>th</sup> (1999)  
*Who's Who in the World*: 2016 (33<sup>rd</sup> Edition); 2015 (32<sup>nd</sup> Edition); 2014 (31<sup>st</sup> Edition);



- 30<sup>th</sup> Pearl Anniversary Edition; 29<sup>th</sup>/2012 Edition (2011); 28<sup>th</sup> Edition (2010); 27<sup>th</sup> (2009); 26<sup>th</sup> (2008); 25<sup>th</sup> Silver Anniversary Edition (2007)  
*Who's Who in America*: 2016 (70<sup>th</sup> Platinum Anniversary Edition), 2015 (69<sup>th</sup> Edition); 2014 (68<sup>th</sup> Edition); 2013 (67<sup>th</sup> Edition); 2012 (66<sup>th</sup> Edition) (7/26/11); 65<sup>th</sup> Edition (2010); 64<sup>th</sup> (2009); 63<sup>rd</sup> (2008); 62<sup>nd</sup> (2007); 61<sup>st</sup> (2006)
2. Elected to The Connecticut Academy of Arts and Sciences (11/13/96)
  3. Former Member of Sigma Xi, a national honorary research society, and President of the University of Hartford Chapter 1988-2017. [Current members of the board: Prof. L. Nagurney, Treasurer (Electrical Engineering dept.) and H. Workman, Secretary (Chemistry dept.)]
  4. Inducted into Pi Mu Epsilon, a national honorary mathematics society.
  5. Humanities Center Fellowship (U. of Hartford, 1989/90 academic year).

## F. REFEREEING AND BOOK REVIEWS

1. Completed [All refereed articles and book reviews/proposals were at the editor's/supervisor's or a member of the editorial board's request]
  - (a) "Variation Principles, Invariance Principles, Symmetry Principles, Laws of Nature: Introduction to the issue on the centenary of the Noether theorems" paper for the journal *Symmetry: Culture & Science* (Budapest; 8/17/2018)
  - (b) *Climate Change Reconsidered II: Fossil Fuels*, Chapter 2 of the book (7/13/2018) <http://climatechangereconsidered.org/wp-content/uploads/2018/12/Front-Matter.pdf>
  - (c) Obituary (with Martin P. Fricke and William Happer) of Roger W. Cohen for *Physics Today* (2/21/2017) <https://physicstoday.scitation.org/doi/10.1063/PT.5.6265/full/>
  - (d) "Symmetry Principles in Einstein's Theory of Relativity" for the journal *Symmetry: Culture & Science* (Budapest; 5/9/2017)
  - (e) "Life against Heat Death" paper for the *International Journal of Astrobiology* (Cambridge University Press; 1/19/2017)
  - (f) "Symmetry and Complexity in Dynamical Systems" paper for the journal *Symmetry: Culture & Science* (10/23/14)
  - (g) Physical Science chapter reviewer for the Nongovernmental International Panel on Climate Change (NIPCC) Report *Climate Change Reconsidered II* (2013) <http://heartland.org/media-library/pdfs/CCR-II/CCR-II-Full.pdf>
  - (h) "Negligence, Non-science, and Consensus Climatology" paper for the journal *Energy & Environment* journal (9/24/13)
  - (i) *Global Warming and Cooling*, Edited by Don J. Easterbrook (Proposal Review, 2010; Elsevier). [New title: *Evidence-based Climate Science; Data Opposing CO2 Emissions as the Primary Source of Global Warming*; pub date, September 2011]
  - (j) "Discrete Scale Relativity and SX PHOENICIS Variable Stars" for the journal *New Astronomy* (6/2/10).
  - (k) "Philosophical Aspects of Time Operators in Quantum Mechanics" for the journal *Symmetry: Culture and Science* (7/7/09)
  - (l) COMMENTS on "Conserved Noether Currents, Utiyama's Theory Of Invariant Variation, and Velocity Dependence in Local Gauge Invariance" by György Darvas for the journal *Concepts of Physics* Vol. 6, No. 1 (2009), pp. 17 – 18.
  - (m) *Symmetries In Physics: Philosophical Reflections*, Edited by Katherine Brading and Elena Castellani (Cambridge, UK: Cambridge University Press, 2003, xii+445 pp) with Gyorgy

Darvas (*Institute for Research Organisation of the Hungarian Academy of Sciences, and Symmetrion, Budapest, Hungary*) for *Symmetry: Culture and Science* Vol. 17, Nos. 3 - 4, pp. 413 - 415 (2006; published in 2007).

(n) "What is Erased in the Quantum Erasure?" for the *Foundations of Physics* journal (4/27/06).

(o) FORWARD to the book by Mitja Peruš, *Human Image Processing: A Holonomic Model* (12/17/05; Noetic Press, to be published)

(p) Honor's Thesis Proposal in Chemistry: "Synthesis of Functional Dendrimers for use in Carbon Dioxide Removal Applications" by Edward Witlicki (4/12/05).

(q) Honor's Thesis Proposal in Philosophy: "Embodied Eloquence: The Primacy of the Aesthetic in Human Experiencing — A Pragmatist's Approach" by Lauren Nuckols (11/22/04)

(r) Honor's Thesis Proposal in Art History: "Queen Christina of Sweden and her Portraiture: the Changing Face of Femininity During the Baroque Era" (11/23/04).

(s) "Informational Symmetry and Complex Cognitive Models" for the journal *Complexity* (January 21, 2003).

(t) Letters on special relativity appearing in the *Mathematics Teacher*, Vol. 95, No. 2 of February 2002 [initiated through Jim Greenwood; U of H] (November 23, 2002).

(u) "Dynamical Networks for Information Processing" for the *Journal of Information Sciences* (November 4, 2002).

(v) "Insert B on the Chemical Elements" for the *Handbook of Chemistry and Physics*, next edition (November 29, 2001; at the request of the author).

(w) "Quantum Evolution as a Nonlinear Markov Process" for the *Foundations of Physics* journal (November 24, 2001).

(x) "Physical Models of Immune Inspired Computing" for *Information Sciences* journal (Spring 2000).

(y) "Ambiguity and Art" for *Visual Mathematics*, the Art and Science Electronic Journal of ISIS-Symmetry (Spring 2000), <http://members.tripod.com/vismath1/>

(z) "A description of the nature and purpose of the Great Pyramid, the layout of Plato's Atlantis and other related matters" for *Visual Mathematics*, the Art and Science Electronic Journal of ISIS Symmetry (Spring2000), <http://members.tripod.com/vismath1/>

(aa) "Count Down to the Fall of Robert Oppenheimer: A Biographical Study" for the University of Hartford Honor's Program Final Project (Spring 2000).

(bb) "Quantum State Teleportation understood through the Bohm Interpretation" for *Foundations of Physics* (Summer 1999).

(cc) Book review of Mari Jibu's and Kunio Yasue's "Quantum Brain Dynamics and Consciousness: An Introduction" (John Benjamins Publishing Company, Philadelphia, 1995) for *The Noetic Journal* — Vol. 1, No. 2 (November 1998), pp. 270–272 [published 1999]

(dd) "[Memory and Pattern-Recognition in Associative Neural Networks](#)" for the *International Journal of Applied Sci. & Computations* (Spring 1998)?

(ee) Book review of James T. Cushing's "Quantum Mechanics: Historical Contingency and the Copenhagen Hegemony" (University of Chicago Press) for *Reason Papers* — October 1997 issue.

(ff) "Teaching and Learning Physics using *Internet; la baldufa* Project" for the *Journal of Materials Education* (Summer 1997).

(gg) "The Science of Star Trek," proposal for the AIP [American Institute of Physics] Press (Summer 1996).

(hh) "A Simple Quantum Eraser Experiment" for the *American Journal of Physics* (Summer 1995).

(ii) "Some Lessons from the Quantum Eraser" for the *American Journal of Physics* (Summer 1995).

(jj) "Do Quantum Jumps Occur at Well-defined Moments of Time?" for the *American Journal of Physics* (Fall 1994).

(kk) "Computer Simulation of a Bell's Theorem Experiment" for the *American Journal of Physics* (Fall 1992).

(ll) "Interference of Polarized Light and Single-Photon Behavior" for the *American Journal of Physics* (Fall 1990).

(mm) "From Kant to Chaos: Physics, Metaphysics, and the Institutionalization of Knowledge" for the *University of Hartford Studies in Literature* (Fall 1990) at the request of Michael Walsh, English Department.

(nn) "Holography - A Technology That Adds New Dimensions to Your Math Class" for the *New York State Mathematics Teachers' Journal* (Spring 1992) at the request of Ray McGivney, Mathematics Department.

(oo) Wrote my part (in 1990) of a joint review of "Quantum Implications: Essays in honour of David Bohm," ed. by B.J. Hiley and F. David Peat (Routledge & Kegan Paul, NY, 1987) for the journal *Philosophy of Science*. My co-reviewer (who invited my participation) is R.I.G. Hughes (Philosophy Department, U. of South Carolina).

## G. CONSULTING

1. Consulted for the American Chemical Society's Internet Symposium, "Critical Look at Global Warming Data: Wickedly Complex System Called Climate" (Peter Bonk, ACS member and Organizer of the ACS meeting event; Denver, CO; 8/28/11, 12:01 PM - 5:45 PM MDT)

2. *Amici Curiae* (with Ross McKittrick and Patrick J. Michaels) in Support of Petitioners On *Writ of Certiorari* to the United States Court of Appeals for the Second Circuit — American Electric Power Company, Inc., *et al.*, *Petitioners* versus State of Connecticut, *et al.*, *Respondents*. Brief filed by S.L. Goessling, H.W. MacDougald, and E.A. Kazmarek for the Southeastern Legal Foundation, Inc. (Supreme Court of the United States; accepted; February 2011; favorable); [http://www.epalawsuit.com/storage/SLF Amici US Supreme Court AEP 2-8-11.pdf](http://www.epalawsuit.com/storage/SLF%20Amici%20US%20Supreme%20Court%20AEP%202-8-11.pdf)

3. Invited "opponent" (i.e., external examiner) for the public examination of candidate Paavo Pylkkänen's University of Helsinki doctoral dissertation entitled "Mind, Matter and Active Information - the Relevance of Bohm's Interpretation of Quantum Theory to Cognitive Science" (9/11/92). {Travel and living expenses paid by the University of Helsinki.} I read his 146-page thesis in the U.S., prior to the examination, and had extensive e-mail correspondence with Mr. Pylkkänen regarding my suggestions for changes. After returning to the U.S. I had to write an "Opponents Report on the Dissertation" which included a recommendation for a grade.

4. Advisor to The International Center for New Technologies in Education (U. of Hartford, since Spring 1989). The Center is a collaboration between the University of Hartford and the Institute for New Technologies of the Academy of Sciences in Moscow. It was established (as mentioned in the 11/13/89 Proposal) "for the purpose of jointly creating and maintaining a center for the development, demonstration, and dissemination of new technologies which can serve to advance and enhance learning opportunities for students and teachers world-wide." I have assisted educators from both home and abroad, including an Assistant Superintendent of the Hartford school system. During Spring 1992 I hosted a principal and teacher from the Moscow

elementary school system while they were at our university.

5. Scientist Advisor, for the NSF-funded 3-year grant (beginning Summer 1992) titled "Teachers, Technology, and Environmental Concerns: Formula for Real Science in the Elementary School." University of Hartford Responsibilities will include regular visits to participating Hartford schools to provide scientific input and guidance to teachers and students for their development of investigative projects in science. I also gave 4 lectures and participated in the summer 1992 project during the last week of June and the first week of July. Fall: I worked with 3rd, 6th and 4th grade classes (Moylean & Hooker schools, Hartford). Additional workshop and supplementary discussion contributed to as a scientific advisor (U. of H., 2/27/93), astronomy lecture (U. of H., 7/1/93), naked-eye observations of constellations (Auerbach farm, 7/1/93), discussion of teachers' projects (U. of H., 7/14-15/93), Symmetry lecture (U. of H., 7/19/93); Physics of Flight workshops (U. of H., 6/24, 6/27-7/1, and 7/5-8/94), Follow-up workshop to Physics of Flight (U. of H., 11/1/94), The Way Things Work workshop (U. of H., 11/19/94).

## **H. PROFESSIONAL ORGANIZATIONS**

1. International Society of Engineering Science (8.5 years)
2. American Physical Society (over 20 years) [Member of the Executive Board; Co-Editor of the Newsletter  
of the New England Section, since Fall 2004 – Fall 2012,  
Past Chair of the New England Section for  
Jan. 1, 2005 – Jan. 1, 2006; Chair of the New England Section, for  
Jan. 1, 2004 – Jan. 1, 2005; Vice-Chair of the New England Section, for Jan. 1, 2003 –  
Jan. 1, 2004; elected Secretary/Treasurer, for Oct. 1993 – Oct. 1996, Oct. 1997 – 2001]
3. American Association of Physics Teachers (over 20 years)
4. International Symmetry Association — Chairman of the Executive Board, since  
2003; re-elected at the Delft meeting; re-elected at the Budapest meeting, August 2006;  
elected at the founding meeting, Budapest, 16-22 August 2003]
5. Engineering Applications Center, University of Hartford (4.5 years)
6. International Society on General Relativity and Gravitation (2 years - previously)
7. The Society for the Philosophic Study of the Contemporary Arts, American Philosophical Association (3 years - previously)
8. Astronomical Society of Greater Hartford (2 years - previously)

## **I. MISCELLANEOUS ACTIVITIES**

1. Invited participant at EPA Scientific Integrity Annual Stakeholder Meeting (Washington, DC; 6/20/2019)
2. Attended FCLD Demonstration Seminar, 'Transferring VHS video clips to DVD'
3. Attended Fall meeting of the New England Section of the APS at the University of Vermont (Burlington, VT; 10/14-15/05).
4. Special Theory of Relativity, PHY 240; Course Overload (student from Hartford Art School) (Fall 2005).
5. Research at Jet Propulsion Laboratory/California Institute of Technology; Pasadena, CA (5/19 – 6/23/04) and research meeting at Stanford University; Palo Alto, CA (7/1/04).
6. Independent Study Student Research Project for the EPSCoR grant (with Christopher Mahar; Sophomore physics major; PHY480, Spring 2004 and Fall 2004).

7. Independent Study Student Research Project for the EPSCoR grant (with Ghaith Hammouri; Senior physics major; PHY480, Fall 2002 – Spring 2003).
8. Research at Jet Propulsion Laboratory/California Institute of Technology (Pasadena, CA; 12/19 –29/02).
9. Participated in the Joint Oxford-Princeton Conference, “Understanding Symmetry in Physics” (Princeton University, NJ; 5/6/02).
10. Connecticut Space Grant College Consortium travel award — meeting for the continuation of joint research in the use of quantum neural networks for space exploration (Jet NASA/Propulsion Laboratory, California Institute of Technology, Pasadena, 6/29-7/5/00).
11. Guest of the Department of Nuclear and Astrophysics (Oxford University, May 2000).
12. Spring meeting of the New England Section of the APS/AAPT/Society of Physics Students at the Yale University (New Haven, CT; 4/9-10/98).
13. Humanities Teaching Enhancement Seminar, "Framing Meanings: The Humanities and Public Life." Participant as discussant and writer of brief papers; University of Hartford (7/13–17/98). Follow-up workshop; University of Hartford (11/7/98).
14. Spring meeting of the New England Section of the APS/AAPT/Society of Physics Students at the Clark University (Worcester, MA; 4/3-4/98). Participated, as Secretary/Treasurer of the New England Section of the APS, in the Executive Board meeting of the APS.
15. Fall Meeting of the New England Section of the American Physical Society at Hanscom Air Force Base (Bedford, MA; 10/24-25/97). Participated, as Secretary/Treasurer of the New England Section of the APS, in the Executive Board meeting of the APS.
16. Spring meeting of the New England Section of the APS/AAPT/Society of Physics Students at the University of Maine (Orono, Maine; 4/11-12/97). Participated, as Secretary/Treasurer of the New England Section of the APS, in the Executive Board meeting of the APS.
17. Fall meeting of the New England Section of the APS at the University of Vermont: (a) Chaired the APS session titled "General Physics" (at invitation of meeting's host) and (b) Participated, as Secretary/Treasurer of the New England Section of the APS, in the Executive Board meeting of the APS (Burlington, 10/18-19/96).
18. At the Spring meeting of the New England Section of the APS/AAPT/Society of Physics Students at MIT: (a) Chaired the APS session titled "Theoretical Physics, Astrophysics, Atmospheric Physics" (at invitation of meeting's host) and (b) Participated, as Secretary/Treasurer of the New England Section of the APS, in the Executive Board meeting of the APS (Cambridge, 4/27/96).
19. 3rd Appalachian Conference on Behavioral Neurodynamics: "Scale in Conscious Experience" (Radford University, VA; 9/9-12/94).
20. Conference on "Philosophy of Quantum Mechanics" (Princeton University, 4/30-5/1/93) {guest at the banquet}.
21. Invited participant {partial expenses paid} at the 5th Bilateral Polish-Italian Meeting on "Thermodynamics and Kinetic Theory" (M' dralin, Poland; 8/1-9/1/90).
22. Invited guest of the Institute of Fundamental Technological Research to do research and begin writing an NSF grant with a colleague, Dr. Romuald Kotowski, on "Variational Principles for Irreversible Thermodynamics" (Warsaw, Poland; late August - early September 1990).
23. Invited participant {expenses paid} at The Amherst Workshop on the Foundations of Quantum Mechanics (Amherst College, 6/10-6/15/90).

24. Conference on "Fundamental Aspects of Quantum Theory" (University of South Carolina, 12/14 -16/89).
25. George Mason Fall Workshop on "Bell's Theorem, Quantum Theory and Conceptions of the Universe" (George Mason University, VA; 10/21-22/88).
26. Five-College Faculty Seminar in the Foundations of Physics, with my student Chris Raymond (Amherst College, 10/11/89 and 12/12/89; Chair, Prof. C.C. Chancey of Amherst College).
27. 1989 Meeting of the Computational Physics Topical Group's Symbolic Computing Session (Boston University, 6/7/89).
28. Gibbs Symposium (Yale University, 5/15-17/89).
29. New England Section of the APS and Executive Committee meeting (University of Vermont, 10/18-19/96; MIT, 4/26-27/96; Bowdoin College, 10/6-7/95; University of Connecticut, 4/7-8/95; Brown University, 10/7-8/94; Harvard University, 4/8-9/94).
30. New England Section of the APS (University of Massachusetts at Amherst, 10/7-8/88).
31. American Philosophical Association annual meeting, Eastern Division (Atlanta, 12/26-30/89).
32. American Philosophical Association annual meeting, Eastern Division (Washington, D.C.; 12/27-30/88).

## **J. COMPUTER WORK**

Extensive programming experience in the symbolic algebraic language MACSYMA and familiarity with MATHEMATICA. (Past experience programming in BASIC, PL/I, FORTRAN and REDUCE.) Experience with mainframe and micro-computers including multimedia work (Vax, Mac, Sun, IBM-compatible, and Apple), word processors (including WordPerfect and MS Word), technical word processors (EXP and EquationEditor for MS Word), and spread sheet programs (LOTUS 1-2-3 and EXCEL). Utilization of on-line library searches plus extensive use of e-mail along with file-transfer applications between the Vax, Sun and IBM-compatibles.

## **K. SOFTWARE GIFT**

Gift, by the president of Macsyma, Inc., of a PC version of Macsyma. This large package (which I installed on the Optics Lab's PC) was donated in order to facilitate advertisement of a program I wrote.

## TEACHING

### A. LECTURES and INTERVIEWS

#### INVITED

##### 1. Professional Organizations

(a) Peter's Corner, Winds of Change, Episode 7 w/ Critical Thinking about Global Warming; 5 July 2017 <http://hudsonctv.com/CablecastPublicSite/show/6916?channel=1>  
Interview/presentation for New Hampshire cable TV (Hudson, NH; 7/5/2019)

(b) "Educational Issues pertaining to Anthropogenic Global Warming/Climate Change" — for the Connecticut Association of Physics Teachers (East Catholic High School; Manchester, CT; 5/15/15)

(c) "Educational Issues pertaining to Anthropogenic Global Warming/Climate Change" — *111th Topical Symposium: Physics of the ATMOSPHERE and CLIMATE* for the New York State Section of the American Physical Society (State University of New York at Plattsburgh, NY; 9/26/14)

(d) "Newton: Experiments with Professor Larry Gould" — *Great Connections Seminar*; July 21 to 28 (Chicago, IL; 7/24/12)

(e) "Faraday: Experiments in Electricity with Professor Gould" — *Great Connections Seminar*; July 21 to 28 (Chicago, IL; 7/25/12)

(f) "Critique of Global Warming" — WatchDog Nation: Radio interview by Ken Capron in Maine (Portland, ME; 1/4/12) <http://wmpg.org/>

(g) "Anthropogenic Global Warming: Illuminating some its Scientific and Methodological Flaws" NES AAPT Tutorial & Debate (2 hours) for the Fall 2011 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (UMass, Amherst; 11/19/11)

(h) "Science Education and Dangerous 'Global Warming': Examining Claims through Critical Thinking in the Classroom" for the National Science Teacher's Association; sponsored by the American Association of Physics Teachers (Hartford, CT; 10/28/11)

(i) "Anthropogenic Global Warming: Illuminating some its Scientific and Methodological Flaws" NES AAPT Tutorial (2 hours) for the Spring 2011 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (UMass, Lowell; 4/9/11)

(j) "What do People Need to Know about Global Warming" and other questions — email interview by Rachel Brown, Staff Writer, *The Daily Citizen* (Dalton, Georgia; 3/30/10)

(k) "Albert Einstein: Myth & Magic" PowerPoint presentation at the *Austrian Central Library for Physics* (University of Vienna, Austria; 8/10/09)

(l) Panelist (included S. Weinberg, Nobel Laureate in Physics) in the Plenary Panel Discussion, "The State of the Art in Interdisciplinary Symmetry Studies" (8/3), and Chair of one of the Plenary Sessions at the *Symmetry Festival 2009* of the International Symmetry Association (Budapest, Hungary; 7/30 - 8/5/09)

(c) "My Disagreements with 'Global Warming'" — Sandy Rios Show: Radio interview from Chicago (Bloomfield, CT; 7/23/08)  
[http://www.culturecampaign.com/WYLL%20archive/Sandy\\_Rios\\_WYLL080723b\\_16kbs.mp3](http://www.culturecampaign.com/WYLL%20archive/Sandy_Rios_WYLL080723b_16kbs.mp3)

(d) "Global Warming"; class interactions at Herricks High School (New Hyde Park, NY; 5/15/08); 3 different classes — Biology, Physics, and Great Decisions.

(e) "Global Warming Talk: Two Perspectives" — for the Herricks International Research Institute, Herricks High School auditorium (New Hyde Park, NY; 5/14/08) [speaker for the "alarmist" perspective — Dr. Michael MacCracken, chief scientist for Climate Change Programs for the Climate Institute, Washington, D.C.]

(f) "Overreacting to Global Warming" — Fox 25 Special Reports TV interview (aired on 5/9/08) <http://media.myfoxboston.com/news/specials/globalcooling.html>

(g) "About those Claims of Dangerous Global Warming: Are They True?" — Current Events Club, Mandell Jewish Community Center (Bloomfield, CT; 2/20/08) [offered/invited]

(h) "Global Warming: A Critical View" (included film) — evening presentation at the Prosser Library (Bloomfield, CT; 10/22/07). [offered/invited]

(i) "Global Warming: A Critical View" AAPT workshop (3 hours; included film) for the Fall 2007 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (University of Connecticut, Storrs; 10/20/07).

(j) "Snapshots of Symmetry in Einstein's Relativity" for the *Symmetry Festival 2006* of the International Symmetry Association (Budapest, Hungary; 8/12-18/06).

(k) "Aspects Of 'Seeing Through Symmetry' — An Interdisciplinary Multimedia Course", Plenary Lecture, for the *Symmetry Festival 2003* of the International Symmetry Association (Budapest, Hungary; 8/16-22/03).

(l) "Curriculum Development Grant Results" for NASA Awards meeting (Bradley Air and Space Museum, CT; 5/7/01)

(m) "Neuro-Quantum Information Processing for the Exploration of Space" for NASA Space Day poster session (Boston Museum of Science; 11/3/00).

(n) "Musical Symmetry" for the composers' forum series, Music for Our Time (The Hartford Conservatory, Hartford; 5/1/99).

(o) "Macsyma in Teaching Linear Algebra" for an evening seminar at the AMS/MAA summer Mathfest conference (University of Seattle; Washington, 8/11/96).

(p) "Seeing Through Symmetry Multimedia Presentation" to the Philomorph Society (Harvard University; Cambridge, 12/4/95).

(q) "Seeing Through Symmetry: A Multimedia Course" (talk co-authored with D. Buckley), at *Symmetry: Natural and Artificial*, Third Interdisciplinary Symmetry Congress and Exhibition of the International Society for the Interdisciplinary Study of Symmetry [ISIS-Symmetry] (14 - 20 August 1995, Washington, D.C.).

(r) "Seeing Through Symmetry": description of a course I designed [see C. 1.] (East/West Invitational Seminar on New Technologies in Education held at Charles University; Prague, Czechoslovakia; 8/20/91).

(s) "Update of Teaching Films for Materials Science and Engineering" (Meeting of the U.S. Materials Education Council; Boston, 11/28/89).

(t) "A-V Teaching Aids in Materials Science Education and Peripheral Topics on Applied Exterior Calculus and Nonlocal Continuum Mechanics" (Meeting of the U.S. Materials Education Council; Boston, 12/2/88).

(u) Report on the SUNY Potsdam math program and collaborative learning techniques (Meeting of the U.S. Materials Education Council; Boston, 11/25/90).

(v) "The SUNY Potsdam Miracle? Some Lessons for Physics" (Joint Annual Meeting of the AAPT & the APS; Atlanta, 1/21-25/90).



(w) "Report on the Mathematics Program at SUNY Potsdam as a Model to Encourage Women in Physics" to the AAPT's Committee on Women in Physics (Summer Meeting of the AAPT at Cal Poly; San Luis Obispo, 6/28/89).

## 2. Universities (other than U. of H.)

(a) "Albert Einstein: Myth & Magic" for the Physics Club (University of Connecticut, Storrs, CT; 10/25/17)

(b) "Anthropogenic Global Warming: Illuminating some its Scientific and Methodological Flaws" — hosted by the Department of Physics, Astronomy, and Geophysics (Connecticut College, New London, CT; 12/2/11)

(c) "'Global warming/Climate Change Alarmism: A Critical Analysis of the Claims" — The Robert F. Voytek Memorial Lecture Series, Hosted by the Central Connecticut State University Physics Club (Newington, CT; 11/4/09)

(d) "Seeking the Light: Dissecting the Scientific Claims about 'Climate Change'" — College of the U.S. *Great Connections Seminar* (Chicago, IL; 7/26/09)

(e) "Albert Einstein: Myth and Magic" — general talk (Trinity College; Hartford, 2/3/06).

(f) "Symmetry Demo" — luncheon presentation at the Wright Center for Innovative Science Education (Tufts University, 10/18/01).

(g) "Science Through Symmetry" — seminar (Physics Department, Trinity College, 10/5/01).

(h) "Seeing Through Symmetry" course lectures at the University of Skoevde (Skoevde, Sweden, 5/29-6/16/00).

(i) "Seeing Through Symmetry: An Interdisciplinary Multimedia Presentation": Physics Colloquium (Stockton State College, New Jersey, 2/28/00).

(j) "The Role of Assessment Tools in Educational Technology Learning Environments in the Biology Curriculum" (talk co-authored with D. Buckley), as well as "Symmetry in Physics & Biology — Part of a Multimedia Course" (talk co-authored with D. Buckley), to the Educational Technology group at the Weizmann Institute for Science (9/16/98, Rehovot, Israel).

(k) "Symbolic Computation: Applications of *Macysma* & *Mathematica* in Physics and Earth Science": CCSU Public Science Lecture (Central Connecticut State University; 4/23/96).

(l) "Seeing Through Symmetry": Special Seminar (Department of Physics, University of Denver; 1/11/94).

(m) "Computers in Physics Education": Special Seminar (Department of Physics, University of Denver; 1/12/94).

## 3. University of Hartford

(a) "DANGEROUS 'Climate Change/Global Warming: Challenges to Critical Thinking, Off Campus... and On'"; lecture to Physics Seminar (2/14/2019)

(b) "Science and the Secular Spirit: Reason in Science and in Ethics"; Humanities Center Fellow (Humanities Center course; 4/17/18)

(c) "The Shape of Things to Come (next semester) in some Spiritual and Secular Realms"; short preview lecture for my Humanities Center Fellow presentation next term (Humanities Center course; 10/24/17)

(d) "Educational Issues pertaining to Claims about Dangerous Anthropogenic Climate Change/Global Warming"; lecture for Hashini Mohotallah' "Sustainability and Environment"

class, FYS 100 (9/28/16)

(e) "Educating the Public (and Chilling Out) about Matters of Fact and of Method Pertaining to Anthropogenic Global Warming/Climate Change"; lecture for the Philosophy Club (2/9/16) [offered/invited]

(f) "Global Warming Alarmism, Gore and All: Checking the Claims, Exposing the Methods" — Andy Craft's "Energy & Environment" class, FYS 100 (10/16/15)

(g) "Climate Change and 'Climate Change': A Search for the Symmetries — Enhancing Scientific Enquiry through Critical Analysis" — Climate Change class AUCT190 (Profs. Alan Hadad and Barry Lubin), Guest Lecture (UT106; 4/24/14)

(h) "Global Warming Alarmism: Checking the Claims, Exposing the Methods" — Environmental Awareness Group (Hawk Hall; 3/31/09)

(i) "Albert Einstein: Myth and Magic" — University of Hartford *Showcase*, sponsored by The President's College (9/7/08)

(j) "Global Warming Claims with Remarks about the Logic and Methodology"; lecture for the Philosophy Club (2/14/08)[offered/invited]

(k) "Global Warming: Examining the Claims"; lecture for Rick Walker's *Reading & Writing I* class (RLC 110; 11/28/07)

(l) "Percy Bysshe Shelley" lecture for Charles Ross' *Survey of English Literature* class (ENG 231; 2/26/07).

(m) "Symmetry" lecture for Ellen Carey's photography class (10/15/04)

(n) "Assessing the Scientific Evidence": lecture as participant in a Forum on Iraq (2/26/03).

(o) "Seeing Through Symmetry" 2 talks with multimedia presentations to parents on Fall Weekend (4/25/99).

(p) "Seeing Through Symmetry" talk & multimedia presentation to the International Studies Board of Visitors Annual Meeting (4/25/97).

(q) "Conservation Law Paradigms in Philosophy and Physics": lecture to Prof. Bernard den Ouden's "Mind and Nature" philosophy class (10/9/95).

(r) "Multimedia Snapshot of Symmetry Course" (with D. Buckley, Biology dept.): computer demo to parents at Orientation (6/3/94).

(s) "Finland: A Journey into Academia, and Elsewhere!" to the Society of Physics Students (10/27/92).

(t) "To See a World in a Grain of Sand": Humanities Center Fellowship lecture (4/18/90).

(u) "Displays of Symmetry in Art and Nature": seminar for Student Fellows of the Humanities Center (10/13/89).

(v) "Science in the Renaissance" to an AUC class on The Italian Renaissance (11/21/88).

(w) "Finland: A Journey into Academia, and Elsewhere!" to the Society of Physics Students (10/27/92).

#### 4. Secondary Schools

(a) "Remarks on 'An Inconvenient Truth' and Related Issues"; a 1-hour presentation to students and faculty (about 100 attended) for a Global Warming Teach-In (E. O. Smith High School; Storrs, 4/25/07)

(b) Panel Discussion about Global Warming; I was one of the 2 'skeptics' for a Global

Warming Teach-In (E. O. Smith High School; Storrs, 4/25/07)

(c) "Science versus Religion"; talk and discussion with high school students' Philosophy Club (Hall High School; West Hartford, 3/14/03)

(d) "Alice in Warpedspacetime: Relativity from S to G" to high school students and teachers (Granby Memorial High School; CT, 3/12/91).

(e) "The Cosmic Background Explorer" to a physics class (Weaver High School; Hartford, 3/8/90).

(f) "Black Holes, Relativity" to 11th and 12th grade students in a college note taking course (Manchester High School; CT, 5/30/89)

(g) "Black Holes" (Bloomfield High School, CT; 11/9/87)

(h) "Lasers": 2 talks at the Poquonock School (Windsor, CT; 3/27/87)

(i) "Lasers" (Middle School, Bloomfield, CT; 5/16/88)

(j) "Relativity and Space Travel" (The Gunnery School; 5/17/86 and Hamden Hall Country Day School; 5/19/86)

(k) "Halley's Comet: Fact or Fancy" (Great Oak Middle School; 2/27/86).

#### 5. Libraries and Amateur Organizations

(a) "Halley's Comet: Fact or Fancy" (West Hartford Public Library; 2/20/86).

(b) "Alice in Warpedspacetime: Cosmological Consequences of Relativity" to the Astronomical Society of Greater Hartford (W. Hartford, CT; 3/18/87).

### CONTRIBUTED

#### 1. Professional Organizations

(a) "Educational Issues details pertaining to Claims about Dangerous Anthropogenic Climate Change" — POSTER presentation for the Summer 2018 National Meeting of the American Association of Physics Teachers (Washington, DC; 8/1/18)

(b) "Educational Issues pertaining to Claims about Dangerous Anthropogenic Climate Change" — ORAL presentation for the Summer 2018 National Meeting of the American Association of Physics Teachers (Washington, DC; 7/30/18)

(c) "A Closer Look at Critical Thinking in Education Concerning Claims about Dangerous Anthropogenic Climate Change/Global Warming" — ORAL for the AAPT Tri-regional Meeting of the New England, New York State, and New Jersey sections (Wesleyan University, Middletown, CT; 10/21/16)

(d) "Critical Thinking in Education Concerning Claims about Dangerous Anthropogenic Climate Change/Global Warming" — ORAL for the AAPT Tri-regional Meeting of the New England, New York State, and New Jersey sections (Wesleyan University, Middletown, CT; 10/22/16)

(e) "A Closer Look at Educational Issues pertaining to Claims about Dangerous Anthropogenic Climate Change/Global Warming" — POSTER for the Spring 2016 Meeting of the American Association of Physics Teachers, New England Section (Thayer Academy, Braintree, MA; 5/20/16)

(f) "Educational Issues pertaining to Claims about Dangerous Anthropogenic Climate Change/Global Warming" — ORAL presentation for the Spring 2016 Meeting of the American Association of Physics Teachers, New England Section (Thayer Academy, Braintree, MA; 5/21/16)

(g) “Educational Issues pertaining to Claims about Dangerous Anthropogenic Climate Change/Global Warming” — ORAL presentation for the Fall 2015 Joint Meeting of the of the New England Sections of the American Physical Society and the American Association of Physics Teachers (Dartmouth College, Hanover, NH; 11/7/15)

(h) “A Closer Look at Educational Issues pertaining to Claims about Dangerous Anthropogenic Climate Change/Global Warming” — POSTER for the Fall 2015 Joint Meeting of the of the New England Sections of the American Physical Society and the American Association of Physics Teachers (Dartmouth College, Hanover, NH; 11/6/15)

(i) “Critical Thinking about Claims of Human-Created ‘Climate Change’ A Way to Enhance a Student’s Scientific Enquiry” — POSTER for the Spring 2012 Meeting of the New England Section of the American Association of Physics Teachers (Milton Academy, MA; 4/12/13)

(j) “Man-Made ‘Global Warming’ (AGW) A Critical-Thinking Approach to Exposing some of its Scientific and Methodological Flaws” — Education session of the APS (Baltimore, MD; 3/18/13)

(k) “Man-Made ‘Global Warming’ (AGW): A Critical-Thinking Approach to Exposing Some of Its Scientific and Methodological Flaws” — AAPT presentation for the Fall 2012 Joint Meeting of the of the New England Sections of the American Physical Society and the American Association of Physics Teachers (Williams College, Williamstown, MA; 11/10/12)

(l) “‘Global Warming/Climate Change’: Issues for Education and for Scientific Societies” — *Great Connections Seminar*; July 21 to 28 (Chicago, IL; 7/25/12)

(m) “Threats to Science Education: A Critical Inquiry into the Claims & Methods used in Promoting Anthropogenic ‘Global Warming’” for the Fall 2010 Joint Meeting of the of the New England Sections of the American Physical Society and the American Association of Physics Teachers (Brown University, Providence, RI; 10/30/10)

(n) “‘Global Warming/Climate Change’: A Critical Look” POSTER (joint author is Christopher Pelliccione, physics senior) for the Spring 2010 Joint Meeting of the New England and New York State Sections of the American Physical Society (Union College, Schenectady, NY; 4/23/10)

(o) “Anthropogenic ‘Global Warming’ Alarmism: Illuminating Some Scientific and Methodological Flaws” for the Fall 2009 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (University of New Hampshire, Durham; 10/17/09)

(p) “Symmetries from Minimizing “Travel” Time: Reflections with Planets” at *Symmetry Festival 2009* (Budapest, Hungary; 8/1/09)

(q) “‘Global Warming/Climate Change’: Claims, Contradictions, & Methods” for the Fall 2008 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (Northeastern University, Boston; 5/9/09)

(r) “Is ‘Global Warming’ Alarmism a Hoax? — A Consideration of Myths, Methods, & Consequences” for the Fall 2008 Joint Meeting of the New England Sections of the American Physical Society and the American Association of Physics Teachers (University of Massachusetts, Boston; 10/11/08)

(s) “Dangerous Anthropogenic Global Warming: Fact or Fiction?” (Spring Meeting of the New England Section of the AAPT/APS; US Coast Guard Academy, New London, CT; 4/4-5/08).

(t) "Global Warming: A Critical Analysis" (included film) for Sigma Xi talk (University of Hartford, CT; 10/25/07).

(u) "A Multipurpose Computer-Algebra Program for Classical and Quantum Physics" (Spring Meeting of the New England Section of the AAPT/APS; Bridgewater State College, MA; 10/25-27/02).

(v) "A Multipurpose Computer-Algebra Program for Upper-Level Physics Courses" on 6/26/01 (2001 Annual Meeting of the Division of Computational Physics, DCOMP, of the American Physical Society; Massachusetts Institute of Technology; June 25-28, 2001).

(w) "Symmetry in Physics & Biology — Part of a Multimedia Course" (talk, 9/14/98, co-authored with D. Buckley), at *Order and Disorder*, Fourth Interdisciplinary Symmetry Congress and Exhibition of the International Society for the Interdisciplinary Study of Symmetry [ISIS-Symmetry] (11 - 20 September 1998 at the Technion; Haifa, Israel).

(x) "A Multipurpose Computer Algebra Program for Upper Level Physics Courses" (Spring Meeting of the New England Section of the AAPT/APS; Clark University, MA; 4/3-4/98).

(y) "Symmetry in Physics & Biology — Part of a Multimedia Course" [co-authored with Donald P. Buckley, Biology Dept.] (Fall Meeting of the New England Section of the AAPT; University of Massachusetts at Amherst, 11/8-9/96).

(z) "A Multimedia Approach to 'Seeing Through Symmetry'" [co-authored with Donald P. Buckley, Biology Dept.] (Winter Meeting of the AAPT; San Diego, 1/3-8/94).

(aa) "Sailplanes and Physics" (for the AAPT at the Joint Spring Meeting of the New England Sections of the APS and the AAPT; Williams College, 4/2-3/93).

(bb) "Seeing Through Symmetry: An Outline of the Course" (Spring Meeting of the New England Section of the AAPT/APS; Wellesley College, 4/3-4/92).

(cc) Same title as in (b) (Winter Meeting of the AAPT; Orlando, 1/6-9/92).

(dd) "Sighting Your Fingers" (Spring Meeting of the New England Section of the AAPT/APS; Smith College, 4/5-6/91).

(ee) "Estimating the Speed and Distance of an Airplane" (Joint Annual Meeting of the AAPT & the APS; San Antonio, 1/20-24/91).

## 2. University of Hartford

(a) "'Global Warming'—But Is It True?"; film of "The Great Global Warming Swindle" followed by a discussion with meteorologist Art Horn (<http://www.theartofweather.com/bio.html>), who also gave a lecture (Our Campus, Our Planet event; to incoming Fall 2010 Freshman; Mali I auditorium; 8/30/10).

## B. INVITED DISCUSSION GROUPS

1. Presentation and Panel Discussion of the movie "Chasing Ice"; Real Art Ways (Hartford, CT; 1/5/2013)  
[https://dl.dropbox.com/u/88601484/Real%20Art%20Ways%20website\\_31Dec2012\\_cinema%20copy.pdf](https://dl.dropbox.com/u/88601484/Real%20Art%20Ways%20website_31Dec2012_cinema%20copy.pdf)

2. Panel discussion on Critical Thinking; invited comments on the use of critical thinking in physics (U. of Hartford, 11/4/94).

3. Panel discussion on Science & Art at the Joseloff Gallery (U. of Hartford, 3/12/91).

4. "Educating Scientists and Engineers: Grade School to Grad School": Moderator of a

panel for college and secondary school teachers on "The Role of Applied Problem Solving in the Classroom" (U. of Hartford, 10/26/90).

5. "Quantum Theory: Concepts and Quandaries" at PIMMS (Project to Increase Mastery of Mathematics and Science) workshop--2 talks, high school science teachers; Choate School (4/27/88).

6. Workshop for elementary school science teachers: Equipment Demonstrations in Physics (11/14/86) and Apple Computer Demonstrations in Physics (12/12/86). Panel discussion on Critical Thinking; invited comments on the use of critical thinking in physics (U. of Hartford, 11/4/94).

7. Panel discussion on Science & Art at the Joseloff Gallery (U. of Hartford, 3/12/91).

8. "Educating Scientists and Engineers: Grade School to Grad School": Moderator of a panel for college and secondary school teachers on "The Role of Applied Problem Solving in the Classroom" (U. of Hartford, 10/26/90).

9. "Quantum Theory: Concepts and Quandaries" at PIMMS (Project to Increase Mastery of Mathematics and Science) workshop--2 talks, high school science teachers; Choate School (4/27/88).

10. Workshop for elementary school science teachers: Equipment Demonstrations in Physics (11/14/86) and Apple Computer Demonstrations in Physics (12/12/86).

### **C. DEVELOPMENT OF NEW TEACHING/ASSESSMENT MATERIALS**

1. PHY 120 [Fall 2015 – Spring 2016]: Added (mostly) detailed explanations for items in Blackboard, under Course LINKS, for: "CHAP 01\_OpenStax/ch01\_Introduction [annotated]\_9/10/15", "How large is the Calcite crystal and how much does it weigh?\_1/30/16", "Navy Develops New Supergun\_5/31/16", "CHAP 04\_CHAP 05 Sec 1\_OpenStax/ch04\_Laws of Motion\_3/3/16", "CHAP 6\_OpenStax\_ch05\_08\_Rotational Motion and part of Chap 8 (slides 1 - 41)\_3/22/16", "Direct detection of gravitational waves\_Fall 2015", "Meeting up with Jupiter--4 July 2016", "CHAP 09\_CHAP 10\_OpenStax\_ch09\_Rotational Dynamics\_Rigid Objects in Equilibrium\_Slides 1 to 16\_3/22/16", "Energy Skate Park: Basics\_PhET\_10/27/15", "Baseball Bat -- Slow Motion\_11/3/15", "Momenta and Collisions\_PhET\_4/7/16"
2. PHY 121[Fall 2015 – Spring 2016]: Added (mostly) detailed explanations for items in Blackboard, under Course LINKS, for: "Listening to People By RALPH G. NICHOLS and LEONARD A. STEVENS\_1/30/16", "CHAP 16\_OpenStax/ch10\_Simple Harmonic Motion and Elasticity copy\_1Feb2016", "CHAPS 16 & 17\_OpenStax/ch17\_The Principle of Linear Superposition and Interference Phenomena\_2Feb2016", "CAPACITORS or RESISTORS: How touch screens work\_3/6/2016", "CHAP 19\_OpenStax/ch19\_Electric Potential Energy and Electric Potential modified\_ch20\_Capacitors [3/26/15]", "Capacitor Lab (PhET)\_3/24/16", "Navy Develops New Supergun\_5/31/16", "CHAP 23\_OpenStax/ch23\_Alternating Current Circuits\_[4/28/2016]"
3. PHY 120 [Fall 2014 – Spring 2015]: Added (mostly) detailed explanations for items in Blackboard, under Course LINKS, for: "Sizes of Planets and Stars: Comparisons (video animation with sound)", "Vector Addition\_PhET", "CHAP 02\_OpenStax/ch02\_Kinematics in One Dimension [annotated]\_2/18/15", "CHAP 02\_OpenStax/ch02\_Kinematics in One Dimension [annotated]\_2/18/15", "CHAP

- 03\_OpenStax/ch03\_Kinematics in Two Dimensions [annotated]\_2/19/15”, “Projectile Motion\_PhET”, “CHAP 04\_CHAP 05 Sec 1\_OpenStax/ch04\_Laws of Motion [3/3/15]”, “CHAP 6\_OpenStax/ch05\_ch08\_Rotational Motion and part of Chap 8 (slides 1 - 41) [3/14/15]”, “My Solar System\_PhET”, “Second wave of debris while Ryan frees the Soyuz - Gravity [movie] Scene”, “CHAP 09\_CHAP 10\_OpenStax/ch09\_Rotational Dynamics\_Rigid Objects in Equilibrium\_Slides 1 - 16 [3/24/15]”, “CHAP 07\_OpenStax/ch06\_Work and Energy [4/2/15]”, “Baseball Bat -- Slow Motion”, “CHAP 13\_OpenStax/ch12\_Temperature and Heat (annotated) [4/22/15]”, “CHAP 14\_OpenStax/ch13\_The Transfer of Heat [4/22/15]”, “CHAP 13\_OpenStax/ch14\_The Ideal Gas Law and Kinetic Theory [4/22/15]”, “CHAP 15\_OpenStax/ch15\_Thermodynamics [4/22/15]”
4. PHY 121[Fall 2014 – Spring 2015]: Added (mostly) detailed explanations for items in Blackboard, under Course LINKS, for: “Rules of Thumb — Some Quick Calculations.pdf [LIG, 12/5/14]”, “CHAP 16\_OpenStax/ch10\_Simple Harmonic Motion and Elasticity copy\_\_8Sept2015”, “Wave Interference (PhET)”, “CHAP 18\_OpenStax/ch18\_Electric Forces and Electric Fields [only slides 1-18] copy\_9/28/15”, “Balloons\_Electrostatics\_PhET”, “Circuit Construction Kit [use in DC mode\_battery]”, “CHAP 18\_OpenStax/ch18\_Electric Forces and Electric Fields [slides 19 ff] [3/24/15]”, “CHAP 19\_OpenStax/ch19\_Electric Potential Energy and Electric Potential modified\_ch20\_Capacitors [3/26/15]”, “CHAP 22\_OpenStax/ch21\_Magnetic Forces and Magnetic Fields [4/7/15]”, “CHAP 23\_OpenStax/ch22\_Electromagnetic Induction.ppt [4/14/15]”, “Faraday's Law (PhET)”, “CHAP 25\_OpenStax/ch25\_The Reflection of Light\_Mirrors [4/21/15]”, “CHAPS 25 and 26\_OpenStax/ch26\_The Refraction of Light [see "Bending Light [Reflection, Refraction, Dispersion]" and "Geometric Optics (Lenses)" to manipulate] [4/21/15]”, “Wave Interference (PhET)\_Light”
  5. PHY 240 [Fall 2014]: Added (mostly) detailed explanations for items in Blackboard, under Course Documents, for: “Einstein's Starting Point”, “PHY240\_4-Vectors 1of2”, “PHY240\_4-Vectors 2of2”, “PHY240\_Bradley (1725) expt on stellar aberration 1 of 2”, “PHY240\_Bradley (1725) expt on stellar aberration\_2 of 2”, “PHY240\_Minkowski diagrams & Invariants”, “PHY240\_Relativistic Doppler Effect”, “Relativity Metric [Frames of Reference]\_sr\_metric”, “Velocity Addition”
  6. PHY 120: Added (mostly) detailed explanations for items in Blackboard, under Course LINKS, for: “Graphing Lines\_PhET”, “Vector Addition\_PhET”, “Moving Man Displacement, Velocity, Acceleration\_PhET”, “My Solar System\_PhET”, “The Ramp\_Work & Energy\_PhET”, “Energy Forms and Changes [First Law of Thermodynamics]\_PhET”
  7. PHY 121: Added (mostly) detailed explanations for items in Blackboard, under Course LINKS, for: “Waves on a String\_PhET”, “Fourier: Making Waves — 1.”, “Radioactive Dating Game\_PhET”, “Nuclear Fission”, “Battery-Resistor Circuit\_PhET”
  8. Honors course proposal revision (Spring 2011) to focus more critically on the issues (HON 300, Fall 2011/2012 or Spring 2012/2013) *Man-Made “Global Warming”: A Critical-Thinking Approach to Exposing Its Scientific and Methodological Flaws.*
  9. Honors course proposal (HON 300, Fall 2010) titled *Man-Made “Global Warming”: A Critical Analysis of the Claims.* Topics include: What is meant by the popular term

- “anthropogenic global warming/climate change” (AGW, for short)? What are correct and incorrect methods of arguing for the existence of AGW? How can science determine if AGW exists, and (if it does) whether it is dangerous? What are possible ethical, political, and economic issues involved in promoting claims of AGW? This seminar course pertains to *critical thinking* about AGW, examining the methods of argumentation, and the evidence for the claims.
10. *Seeing Through Symmetry* book (Spring 2010). Contains about 90 pages so far, with the Titles (indicating the subject matter) of all 13 chapters. Included are the Introduction, Chapter 1, portions of some of the other chapters, plus a partial Table of Contents, Appendix, Bibliography, Table of Figures, Answers to Selected Problems, Glossary, and Index.
  11. Created and Taught a New course (FYS100, Fall 2009) titled, *Man-Made “Global Warming”: A Critical Analysis of the Claims*. This was a First Year (for freshman only) Seminar that employed extensive use of in-class discussions, videos, handouts, library Reserves, and the internet. The course pertains to *critical thinking* about Anthropogenic Global Warming (AGW), examining the methods of argumentation and the evidence for the claims. There were 17 written assignments (two of which were graded), one graded quiz, and a Final Project for which a Paper and a PowerPoint presentation was required from each student. Some topics included (approximately in order): (a) What do you Mean by AGW? Do you believe it is dangerous? (b) How did you come to your beliefs about AGW? (c) Why did you take this course? (d) How can people come to their beliefs? (e) What is Thinking? (f) Fallacies Used in Argumentation (g) What is Science? (h) What is “Bad” Science? (i) A video on the PRO side of AGW (j) A video on the CON side of AGW (k) A video wherein there is a debate on whether AGW is a “Crisis”; (l) A video on the dangers of carbon dioxide; (m) A video on the benefits of carbon dioxide [for me to fill in the rest, if desired]
  12. “Diagnostic Math Quiz” — consists of 20 multiple-choice questions which includes topics on elementary algebra, geometry, trigonometry, and logic. This is to be administered at the beginning of the PHY 120 and PHY 112 sequence. Bubble sheets are used for grading. (Spring 2007)
  13. “FIGs Program”: First Physics Department teacher of the PHY 112 course, which I revised, for the College of Engineering’s FIGs (First Year Interest Groups) grant (Spring 2001).
  14. “EROs Program”: This linear algebra program, written and first used in my M 220 class during the 1st summer session of 1999, is for Macsyma version 2.1 (or higher). It enables the user to perform elementary row operations (EROs) on a matrix defined outside the program or within the program. It also saves the final matrix, obtained through the EROs, so the user can employ it in further calculations (e.g., the saved matrix, m, can be used as input to a new run of the program). An update of instructions was communicated to my students so they could use the version for Maxima 5.12 — an open-source software program that they downloaded for use in my Linear Algebra course taught during the summer of 2007. I have offered the program to two faculty who teach M220 and are in the University of Hartford’s Mathematics Department.
  15. “Seeing Through Symmetry”: In the Spring of 1990 a past Director of the AUC, Virginia Hale, invited me to develop a new laboratory-based course for non-science majors. I taught the course during the Fall 1991 and Spring 1992 semesters,



conducted a workshop for 3 other faculty who will be teaching it, and was coordinator of the course for a member of the Engineering College, Bill Shaheen, who taught it during the Spring 1992 semester and during the '92-'93 academic year. (I also submitted an NSF ILI grant proposal [Scholarship and Professional Development, C. 1.(a) and 2. (b)].) "Seeing Through Symmetry" integrates disciplines from across the University in order to introduce students to fascinating ideas from the sciences and math. Its original (a) Syllabus and (b) Laboratories have begun to acquire both national and international interest. I have also written a (c) Symmetry Prod! (lecture-note summary of certain physical concepts employed in the course so that students may re-create for themselves where symmetry concepts enter). Revised "Seeing Through Symmetry" lab manual (8/28/98).

16. "Topics in General Relativity": This is an Independent Study graduate-level course pertaining to the foundations of Einstein's theory but using the more advanced mathematics of Differential Forms and supplemented by the symbolic programming language MACSYMA. It was created at the request of two students who took my Special Relativity course, PHY 240, in the Fall of 1991. Course meetings began in the Spring of 1992.
17. "Computers in Physics and Physics Education": This is an Independent Study course taken by a student who is a dual major in Secondary Education (B.A.) and Physics (B.S.). It will involve the enhancement of both his classroom skills and his physics background through the integration of physics-based computer material in a laboratory setting. The course begins during the Summer of 1993.
18. "Some Guides to using MACSYMA for Linear Algebra": This is an 8-page set of comments, along with computer-generated examples, so students can apply the symbolic-algebra software package to my Linear Algebra course, M 220 (summer 1993).

#### **D. HONORS COURSE**

1. A past Director of the AUC program asked me to teach the first Honors section of "Reasoning and Science" during the Spring 1991 semester.
2. The current Director of the AUC program asked me to teach the first Honors section of "Seeing Through Symmetry" during the Fall 1993 semester.

#### **E. OUTSIDE WORK WITH STUDENTS**

1. Society of Physics Students: I am the Faculty Advisor and Creator of the University of Hartford Chapter of this national organization. We had many SPS activities for the academic years 1988/89 through 1995/96. These included: Tours of Princeton University's Plasma Fusion Laboratory, the Institute for Advanced Study, the Princeton Physics Department's cyclotron (Spring Breaks, 1989 and 1990), Brookhaven National Laboratory on Long Island (Spring Break, 1991) and SUNY Stony Brook's Physics Department's facilities (also on Long Island; Spring 1992); 2 trips to Yale for a meeting of the New England Section of the APS, and a trip to the New York Metropolitan Museum of Art for an exhibit showing some scientific paintings of Joseph Wright of Derby (Fall 1990). We also showed films, visited the observatories of a colleague in Connecticut, and had a variety of speakers from outside and within the University.

##### 2. Research and Teaching

- (a) Honors Thesis Advisor to Daniel J. Hultgren (Physics/Philosophy major) for his

- thesis “The Question Concerning Scientific Realism” (University of Hartford; Spring 2009)
- (b) Directed Research of Chris Pelliccione on the topic of “global warming/climate change”. He chose the topics that interested him, typed up weekly reports (complete with references, tables, and graphs), and we discussed those reports during our weekly meetings; PHY480 (UofH; Spring 2009).
  - (c) Directed Daniel Hultgren (dual major in Physics/Philosophy) in a “Investigation of the Scientific Basis for Claims about Global Warming” PHY480 (U. of H., Fall 2007); submitted typed up research reports.
  - (d) Directed Daniel Hultgren (dual major in Physics/Philosophy) in a “Investigation of the Scientific Basis for Claims about Global Warming” Dan Hultgren (U. of H., Spring 2007); submitted typed up research reports
  - (e) Directed George Lyman in a Computational Physics research project pertaining to the generation of electrical analogues for linearized equations obtained from a study of certain phase transitions (meetings during 1989/90).
  - (f) Readings and discussions with Chris Raymond on Foundations of Physics (Fall 1989).
  - (g) Mentor for Bloomfield High School student, Michael Strange, for a project on General Relativity & Black Holes (Spring 1992).
  - (h) Extra help sessions with Physics 112 and Physics 330 classes (Spring 1990) and with Physics 113 and AUCT 160 classes (Spring 1992).

## F. MISCELLANEOUS ACTIVITIES

1. Fractal Geometry II: presented by Michael Frame, Nial Neger, Benoit Mandelbrot (Yale University; 8/15-17/05)
2. Fractal Workshop II: presented by Michael Frame, Nial Neger, Benoit Mandelbrot (Yale University; 8/16-18/04)
3. Organized and Chaired the Education Session of *Symmetry Festival 2003* (Budapest, Hungary; 8/16-22/03).
4. Fractal Workshop II: presented by Michael Frame, Nial Neger, Benoit Mandelbrot, and Ken Musgrave (Yale University; 8/12-16/02).
5. Vernier Software & Technology workshop (Sheraton Springfield-Monarch Place Hotel; Springfield, MA, 4/24/02).
6. Summer Meeting of the AAPT (University of Minnesota; Minneapolis, 6/25-30/90).
7. As a participant in the New Liberal Arts (a national organization) I was invited by the Iona College Physics Department to bring colleagues to see a presentation of computer software for music (NY, 6/22/90).
8. MacAdemia '90 Conference (Rochester, NY; 5/29-6/1/90).
9. Invited participant at the New Liberal Arts conference (Trinity College; Hartford, 3/29-31/90).
10. Fall Meeting of the New England Section of the AAPT (Keene State College, 11/12-14/93).
11. Joint Spring Meeting of the New England Sections of the AAPT [and APS] (Harvard University, 4/8-9/94).
12. Joint Spring Meeting of the New England Sections of the AAPT [and APS] (Wesleyan University, 4/7-8/89).

13. Contributing member to the national and international teachers' e-mail forum for discussing educational issues pertaining to physics (on and off since July 1987).

## SERVICE

### A. COMMITTEES & EVENTS

#### 1. International

- (a) **International Symmetry Association (based in Budapest) — Chairman of the Executive Board since 2003**
- (b) Advisory Board of the International Center for New Technologies in Education (M. Schaffer of U. of Hartford, Chair); several meetings plus ongoing consultation.  
Invited member

#### 2. National and Local

- (a) Remarks to the Governor's Council on Climate Change\_Hartford CT\_10July2015\_put in MS Word document from written notes
- (b) Sigma Xi Delegate (University of Hartford Chapter) to the Annual Sigma Xi Meeting (The Woodlands, TX; 11/11-14/09)
- (c) Participated in the New England Section of the APS/AAPT Joint Spring Meeting, and, as Newsletter Co-Editor, in the NES APS Executive Board meeting; University of Maine (Orono, 4/20-21/07).
- (d) Shell Oil Company's town hall event, hosted by Shell's President, John Hofmeister (Hartford Hilton, 3/13/07; invited).
- (e) American Physical Society, Unit Convocation at the American Institute of Physics headquarters (College Park, MD; 2/17/07).
- (f) American Physical Society, Unit Convocation at the American Institute of Physics headquarters (College Park, MD; 2/18/06).
- (g) Sigma Xi Delegate (University of Hartford Chapter) to the Annual Sigma Xi Meeting (Seattle, WA; 11/2-5/05).
- (h) Judge of posters in math and physics for the Student Research Conference at the Annual Sigma Xi Meeting (Seattle, WA; 11/2-5/05).
- (i) Participated, as Past Chair and Newsletter Co-Editor, in New England Section of the APS, Executive Board meeting at the University of Vermont (Burlington, 10/14-15/05).
- (j) American Physical Society, Unit Convocation at the American Institute of Physics headquarters (College Park, MD, 2/18/05).
- (k) Planning meeting for the Joint Fall Meeting of the New England Sections of the AAPT [and APS] at MIT (Cambridge, MA; 10/29/04).
- (l) Co-Organizer of the Joint Fall Meeting of the New England Sections of the APS [and AAPT] at Pratt & Whitney (East Hartford, CT, 10/22 - 23/04) and Chair of the Plenary speakers session (10/22).
- (m) Chair of the 9:00 am Contributed Papers session at the Joint Fall Meeting of the New England Sections of the AAPT [and APS] at Pratt & Whitney (East Hartford, CT, 10/22

- 23/04).

- (n) Co-Organizer of the American Association of Physics Teachers' Committee on Women in Physics for 1989-1992 (M. Takats of Ursinus College, Chair); usually 2 meetings per year. Invited member.

### 3. University

- (a) Agreed to be Faculty Advisor of the university's Turning Point USA (TPUSA) student club

- (b) Provost's Appeals Committee (Spring 2018)

- (c) LIGO lecture by one of the main creators, on direct detection of Einstein-predicted gravitational radiation; I was inviter, organizer, and host; President Walter Harrison gave introductory remarks (4/29/2017).

- (d) Organizer and Host for the public lecture: "How the US NAS Misled the World Community on Cancer Risk Assessment" by Edward J. Calabrese, Ph.D., Professor of Toxicology, University of Massachusetts, Amherst (4/26/2016)

- (e) Faculty Senate (Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2016, Spring 2017, Fall 2017, Spring 2018 — Environmental and Sustainability committee, Fall 2016, Spring 2017, Fall 2017, Spring 2018)

- (f) Member of the Faculty Senate's Bent, Larsen, Trachtenberg committee (Spring 2014)

- (g) Host for public lecture, "Why did the Global Warming Movement Fail?" by Marc Morano, Publisher of the skeptical website Climate Depot & former researcher with U.S. Senate Environment & Public Works Committee (10/30/2012)

- (h) Host for public lecture, "The Record Open Arctic Ocean of 2012: Will it Affect This Year's Weather?" by Tom Wismuller, meteorologist from NASA and world lecturer (10/23/2012)

- (i) Faculty Senate (Fall 2012, Spring 2013)

- (j) Host for public lecture, "The Climate of Freedom" by Viscount Christopher Monckton — policy advisor to Margaret Thatcher, former Prime Minister of the United Kingdom — (3/2/2012)

- (k) Faculty Senate — Administration Liaison Committee, Faculty Affairs Committee (Spring 2012)

- (l) Faculty Panel for Embassy Visit Program (Malaysia, Saudi Arabia) hosted by S. Skinner (10/15/08).

- (m) International Studies Committee; Anne Comiskey, Chair (2007/2008)

- (n) Honors Committee (Fall 2004 and Spring 2005).

- (o) Library Acquisitions Committee (Fall 2004, Spring 2005)

- (p) AUC Committee (Fall 2000 – Spring 2001).

- (q) Promotion and Tenure Appeals Committee (Spring – Fall 1999).

- (r) Intercollegiate Science Faculty Committee (Fall 1995). Invited member.

- (s) WISEST [Women In Studies of Engineering, Science, and Technology] Committee (Fall 1995). Invited member.

- (t) PKAL/Keck (Project Kaleidoscope supported in part by NSF and the W.M. Keck Foundation) Member of the Core Faculty (Fall 1994 - Spring 1995). Invited member (at the request of Elizabeth McDaniel, Associate Vice President for Academic Affairs & Associate Dean of Faculty).

(u) Academic Standing & Educational Policy (Fall 1994 and Spring 1995). Invited member.

(v) General Education Task Force (Fall 1994 and Spring 1995).

(w) WISEST Committee meetings (Spring 1994 - Fall 1994). Invited Kara Martin, Miss Georgia (first runner-up in the Miss American Pageant for 1993 and *summa cum laude* graduate in physics from Georgia Southern University) to be the key-note speaker at our Career Day, for high school girls, this Fall. She was at the University on November 15. Invited member.

(x) Contract Major Committee for 1990/91; wrote two evaluations. Invited member (at Chuck Colarulli's request).

(y) Faculty Senate's International Studies Committee meeting (Fall 1991). Invited contributor.

(z) Master Teacher's Committee (Fall 1988).

#### 4. College

(a) Summer 2017 orientation advisors (6/9/2017)

(b) Meeting with prospective physics student, Justin Higgins (with Kellie Westenfield, Director of Collegiate Recruitment and Communication) interested in "Biotech, Genetics, Theoretical Physics, and Quantum Mechanics" (4/12/2017).

(c) Spring 2017 Reception for prospective physics students (4/9; from 4/10 email sent by Jessica Hanson: "I greatly enjoyed meeting you yesterday and am beyond enthusiastic to begin learning from you in the fall.")

(d) Curriculum Committee (Fall 2012, Fall 2016, Spring 2017).

(e) Spring Preview presentation to prospective students (4/14/2012).

(f) Curriculum Committee (Spring 2012).

(g) Fall Preview and Lunch with prospective students (10/9/2011).

(h) Fall Preview and Open House (10/7/18)

(i) Spring Reception/Luncheon (March 2006).

(j) Promotion & Tenure Committee (Fall 2002 - Spring 2003).

(k) Promotion & Tenure Committee (Fall 1995 - Spring 1996).

#### 5. Departmental

(a) Physics Self-Assessment report (Spring 2019)

(b) Physics Lab Tour; Fall Preview (10/29/17)

(c) Generation of the Physics Department NEASC report and TracDat numbers (May 2011)

(d) Hike with physics major [D. Hultgren] to Hublein Tower (10/29/06)

(e) Trip with physics major [D. Hultgren] *UConn Physics Colloquium "The Casimir Effect: Theory and Practice"* Prof. Robert L. Jaffe of MIT (10/27/06)

(f) Trip with physics major [S. Maloney] *UConn Physics Colloquium "If EM fields do not operate on each other, can a single photon interfere with itself?"* Prof Chandra Roychoudhuri (9/29/06)

(g) Physics Get-Together with physics majors (discussion and pizza; 9/14/06).

(h) Trip with 2 physics majors [S. Maloney, A. August] *UConn Physics Colloquium "Bose, Einstein, and the Development of Bose-Einstein Statistics"* Prof Kamesh Wali (9/8/06)

(i) Open House for the Physics Department (10/9/05)

(j) Open House for the Physics Department (10/8/04)

- (k) I wrote the revised version of the Department of Physics Self-Study Report (November 2002).
- (l) Physics Assessment Update (with J. Mc Donald) on-line (July 19, 2002).
- (m) National Task Force on Undergraduate Physics survey (May 8, 2002)
- (n) I wrote the 1<sup>st</sup> draft of the Department of Physics Self-Study Report (completed on August 30, 2001).
- (o) Secretary (at Chair's request) for departmental meetings of 1989/90 and 1990/91; took notes, and typed them up, for all meetings.
- (p) Director of Physics Student Advising (at Chair's request) since Fall 1990.
- (q) Evaluation Form Committee (Spring 1990).

## **B. SELECTED INITIATIVES**

### **1. Special Work with Students**

(a) *Senior Sponsor* for Daniel J. Hultgren (U. of H. with a B.S. in Physics and B.A. in Philosophy, May 2009) who was chosen as the 2009 John G. Martin Scholar to Oxford University.

(b) *Senior Sponsor* for Jessica Dunmore (U. of H. with a B.S. in Physics and Math, December 1999) who was chosen as the 1999 John G. Martin Scholar to Oxford University. As of Fall 2001 Jessica has been accepted into the D.Phil. program in Physics at Oxford; she has been awarded funding by Oxford and by the U. of Hartford. (At Oxford she was in a 3-three year Masters program in Physics.) She had, incidentally, been accepted into the Ph.D. programs of several prestigious American universities specializing in astrophysics, including the University of Washington (where she was awarded a summer 1998 Research award; and gave a poster, based on her paper, at a Los Alamos National Labs conference; fully-supported), and at the University of Hawaii. During the Spring 1999 she was awarded a Research Fellowship at the Argonne National Laboratory in Illinois.

(c) *Senior Sponsor* for Chris Raymond who was chosen as the 1990 John G. Martin Scholar to Oxford University. He recently obtained his M.Sc. in Applied Physics there at Hertford College. He has been admitted into the Ph.D. program at Oxford as well as into the Ph.D. programs of several prestigious American universities specializing in applied optics, such as the University of New Mexico (where he now studies), the University of Rochester, and Georgia Institute of Technology.

(d) *Sponsor* of Julio Malo who was chosen as the 1991 John G. Martin Scholar to Oxford University.

**2. Other Sponsored Activities** (as President of our school's Sigma Xi Chapter; Sigma Xi is a national research honor society):

(a) Spring lecture on "Quantum Superposition: Counterintuitive Consequences of Coherence, Entanglement, and Interference" by Mark Silverman of Trinity College (4/29/08).

(b) Fall lecture by Mark Silverman of Trinity College on Shedding Light on Dark Matter in the Universe (11/16/01).

(c) Spring lecture by Mark Stier of Raytheon on the Next Generation Hubble Space telescope (4/28/00).

(d) Spring Banquet lecture by Mark Stier of Perkin Elmer on the space telescope (Spring 1995).

(e) Informal talks plus a lecture "The Impact of Future Communication Technology" by

John Truxal of SUNY Stony Brook (12/4/90).

(f) Informal talks plus a lecture "What Makes Science Hard?" by Sheila Tobias (10/17/90).

(g) A Spring Banquet lecture by John Stachel (Boston University), former Director of the Einstein Project, entitled "Einstein: The Man Behind the Myth" (Spring 1990).

## C. MEETINGS AND EVENTS

### 1. International

(a) Chair of a Plenary Session at the *Symmetry Festival 2006* of the International Symmetry Association (Budapest, Hungary; 8/12-18/06).

(b) Meetings in Poland with the Director of Computer Education for possible collaboration with the University of Hartford (Warsaw; late August and early September 1990). Collaboration established.

### 2. National

(a) Report, representing the Past Chair of the New England Section of the American Physical Society, at the Unit Convocation (College Park, MD, 2/18/06).

(b) American Philosophical Association/Eastern Division (New York City; 12/29/05).

(c) Joint Spring Meeting of the New England Sections of the AAPT [and APS] at Middlebury College (Middlebury, VT, 3/30 - 31/01). Consulted about Secretary/Treasurer report at Executive Council Meeting.

(d) Fall Meeting of the New England Section of the APS at Central Connecticut State University (New Britain, CT, 11/11 - 12/00). Secretary/Treasurer report at Executive Council Meeting.

(e) Joint Spring Meeting of the New England Sections of the AAPT [and APS] at Rhode Island College (Providence, RI, 4/14 - 15/00). Secretary/Treasurer report at Executive Council Meeting.

(f) Invited report, as Secretary/Treasurer of the New England Section of the American Physical Society, at the Unit Convocation (College Park, MD, 1/29/00).

(g) Fall Meeting of the New England Section of the APS at Colby College (Waterville, ME, 11/5 - 6/99). Secretary/Treasurer report at Executive Council Meeting.

(h) Invited report, as Secretary/Treasurer of the New England Section of the American Physical Society, at the Unit Convocation (College Park, MD, 1/30/99).

(i) Invited report, as Secretary/Treasurer of the New England Section of the American Physical Society, at the Unit Convocation (College Park, MD, 1/14/95). [Professor D. Allan Bromley, Science Advisor to former President George Bush, was a co-chair at the Convocation.]

(j) Chaired session titled "Keeping the Vision Alive: The Pursuit of Physics — A Female Perspective," AAPT Committee on Women in Physics — Winter Meeting of the AAPT (New Orleans, 1/4/93). [More detail in section on Scholarship and Professional Development, B. 1. (c).]

(k) Committee on Women in Physics reception to honor past Presidents of the APS and the AAPT; read a citation which I wrote honoring the incoming President of the AAPT, Prof. Judy Franz of the Physics Department, West Virginia University — Joint Meeting of the AAPT & APS (Atlanta, 1/90).

(l) Meetings of the AAPT Committee on Women in Physics at the Joint Annual Meetings of the AAPT & APS (San Francisco, 1/89; Atlanta, 1/90; San Antonio,

1/91) and at the Winter Meeting of the AAPT (Orlando, 1/92).

3. Local (University of Hartford)

- (a) Introductory remarks as co-host of TPUSA event — “Diversity and Division in America”; presented by Will Witt (4/5/19)
- (b) Fall Preview; representing Physics department (10/12/14, 11/1/15, 10/2/16)
- (c) Open House for the Physics Department (10/4/15)
- (d) Spring Reception 2015; Physics department presenter (D201, 3/28/15)
- (e) Luncheon meeting for possible physics majors (1877 Club, 3/2/15)
- (f) Second Fall Preview Day, physics representative (Lincoln Theater, 9/30/12)
- (g) Organized and Hosted the event critiquing “Global Warming/Climate Change” for the University’s Our Campus, Our Planet day for incoming freshman; Film: *The Great Global Warming Swindle*, Talks: L.I. Gould/Physics Dept. and Art Horn/meteorologist and creator of the business “The Art of Weather”; (Fall 2009 – Summer 2010; event, 8/30/10).
- (h) Hosted and gave introduction to the talk “Climate Change: A Policy Maker’s Prospective” by Viscount Christopher Monckton of Brenchley (3/5/08) [event sponsored by the President’s office].
- (i) Society of Physics Students — dinner and trip to the Observatory of Charles Hammond (East Hartland, CT; 9/20/03).
- (b) Open House for the Physics Department (10/12/03)
- (c) Meeting with Mr. M.K. Wong, President of Wellmen Electric Houseware Company, Ltd of Hong Kong (Sister City Alliance - Dongguan City, China and Hartford, CT) to tour our physics facilities (4/29/00).
- (d) Open House: Physics table at Lincoln Theater, 11:00 a.m. – Noon; A&S table at 1877 Club, 1:00-2:00 p.m. (9/26/99).
- (e) Represented the APS (at request of Judy Franz, Executive Officer) at the inauguration of the president Walter Harrison (4/25/99).
- (f) University of Hartford *Today* multimedia presentation, "Symmetry in Physics & Biology — Part of a Multimedia Course" (Gray Center, 10/4/98).
- (g) Fall Preview Day, physics presentation (Lincoln Theater, 9/27/98).
- (h) Faculty mentor to James Shattuck, Chemistry Dept. ('96 - '97 Academic year).
- (i) Hosted Sir Christopher Zeeman, Principal of Hertford College, Oxford University (4/8/94).
- (j) Faculty Marshall of the faculty at graduation (5/89 through 5/92) and Marshall for the A&S students (5/93).
- (k) Breakfast meeting, at the request of the Director of International Studies, with Dr. Jacek Klich from the Jagiellonian University of Krakow, Poland (11/25/90); tour of computer facilities (D272) with demonstration of MACSYMA (11/27/90).
- (l) Meeting, about symmetry ideas, with members of the Science and the Art departments of New York's Newburgh Free Academy (5/4/90).
- (m) Optics demonstrations for visiting 7th graders of the Fox Middle School in Hartford (4/26/90).
- (n) Open House; discussion of Physics program and computer demonstrations (10/16/88, 10/15/89, 10/8/95, 10/27/96).
- (o) Science and Technology Day (2/12/89).
- (p) Participant in Parents Weekend (10/22/89).
- (q) Representative of the Department at Honors Day (3/3/90).



(r) Honors Phonathon (Spring 1990).

(s) Marshall for the Senior Administrators and Regents at the Inauguration of President Humphrey Tonkin (10/28/89).

#### **D. RECRUITING**

1. Helped bring in 3 students to the University for the Fall 1992 as a result of a Spring 1992 Phonathon: One was Christine Botcheller (from Singapore) who was enrolling with a friend. Another was Brian M. Briggs (from Ogdensburg, NY).

2. Increasing the Number of Physics Majors: Helped bring in more physics majors: Clayton Jacobs (U.S.), scholarship students Anthony Laudato (U.S.) and Neil Baverstock (England), who planned to take a dual major with Philosophy, Tim Barron (U.S.), who was a dual major in Education, Dennis O'Connell (U.S.). My 1992 records (prior to this past sabbatical year) indicate 17 majors and 13 minors.

3. **Science Brochure:** Meetings with members of the Admissions Office to oversee the Physics Department section of the Brochure (7/89 and 9/89).

4. One page recruitment flyer entitled "Highpoints in Physics at the University of Hartford" (1989).

5. Meeting with Terhi Mölsä, Educational Advisor, Finland-U.S. Educational Exchange Commission; Helsinki, Finland (9/18/92) to discuss programs at the University of Hartford and give her brochures and catalogues from our Admissions Office.

#### **E. MISCELLANEOUS**

1. Faculty Coordinator for PHY 112, 113, 114 (academic years 1999 – 2000, 2000 – 2001, 2004 – ?).

2. Physics Determiner of Transfer Credits (Fall 2014 – Spring 2015; Fall 2015 – )

3. I have been an advisor to several students since 1988. Duties are Change of Major, Declaration of Minor, Transfer of Credits, Summer courses for credit taken at other schools/colleges, Credit by Examination, Assigning Advisees. In 2008 I was the advisor to all physics majors.

4. "Sampling Eastern Europe: Ordinary People, Ordinary Physicists, Extraordinary Circumstances" (U. of Hartford, 10/26/89). This was an illustrated talk about the events I witnessed in Eastern Europe prior to the acceleration of dramatic changes there during the Fall of 1989.

*18 September 2019*